REDESIGNING PUBLIC SCHOOL SYSTEMS
A QUALITATIVE STUDY INTO THE POTENTIAL FOR UTILIZING IDEALIZED DESIGN TO CREATE THE "NEXT GENERATION" OF AMERICAN PUBLIC SCHOOLS

A Dissertation
Presented to
the School of Education
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by Trace Douglas Pickering
November 2006

REDESIGNING PUBLIC SCHOOL SYSTEMS
A QUALITATIVE STUDY INTO THE POTENTIAL FOR UTILIZING IDEALIZED DESIGN TO CREATE THE "NEXT GENERATION" OF AMERICAN PUBLIC SCHOOLS

by Trace Douglas Pickering
November 2006

Approved by Committee:

David Darnell

Jeananne Hagen-Schild

William Wright

Jan McMahill
Dean of the School of Education

REDESIGNING PUBLIC SCHOOL SYSTEMS: UTILIZING IDEALIZED DESIGN TO CREATE THE "NEXT GENERATION" OF AMERICAN PUBLIC SCHOOLS

An abstract of a Dissertation by
Trace D. Pickering
November, 2006
Drake University
Advisor: D. Darnell

The problem. To consider an alternative to traditional reform strategies and strategic planning, the intent of this study was to inform those interested in designing school systems capable of meeting current and future learning demands of the possibilities of Idealized Design as a design methodology. Specifically, the problem was to analyze the impact on participants in the process and their perceptions of the possibility of the new design for their school districts. Participant perceptions were described and recommendations for employing Idealized Design made.

Procedures. Qualitative methodology was employed due to the contextual nature of Idealized Design. Twenty-nine teachers, administrators, board members, and community members from two school districts involved in the Idealized Design process were randomly selected for interview and provided the opportunity to respond to a survey. Fifteen members participated – eight via face-to-face interviews and seven through an open response questionnaire. Through these open-ended interviews, questionnaires, a document review, and participation in the meetings, the impact of Idealized Design on the designers and their perceptions of possibility for the Next Generation of schools were analyzed to develop conclusions, implications, and recommendations.

Findings. Respondents did find that their perceptions about schooling and design had been altered through the Idealized Design experience. Respondents felt a greater sense of commitment to the work and felt that the breadth and depth of their understanding regarding the current set of interacting problems they faced were markedly improved. They also indicated satisfaction with the amount of stakeholder input during the process, leading them to feel more confident in pursuing significant changes for their schools.

Conclusions. Idealized Design appears to have the potential to impact the way in which stakeholders view both the problems their community schools face and the solutions afforded them.

Recommendations. Communities desiring to utilize Idealized Design need to carefully consider their context and work to ensure that such a process can succeed. Idealized Design has potential for districts and communities wishing to alter the conversation around education. Idealized Design is a complex and involved process that requires professional assistance until the methodology becomes more widely understood and practiced.

Table of Contents

List of Tables

Table Page

List of Figures

Table Page

Chapter 1

INTRODUCTION

> *Alienation, lust for power, frustration, insecurity, and boredom are only a few symptoms of the emerging culture, where ready-made intellectual goods are making the formation of mass opinion a matter of mass production.*
>
> (Gharajedaghi, 1999, p. 26)

For the better part of the last 50 years, arbitrarily beginning with the *Brown v. Bd. of Education* (1956) ruling, public education has been encouraged, cajoled, or forced to engage in efforts designed to improve real or perceived ineffective and/or inefficient practices. Often called restructuring, rethinking, or reform, these efforts have yielded little if any substantial or qualitative change to either the functions or outcomes of school districts (Ackoff, 1999; National Commission on Excellence in Education, 1983; Daggett, 2005; Finn, 2005; Fullan, 2003; Kohn, 1999; Sarason, 1990; Sarason, 1996).

As the context of the world undergoes drastic and cataclysmic change, the discrepancies between the deliverables of the school and the needs of society have become increasingly apparent. In general, the majority of school leaders have spent their careers in change efforts. From the middle school concept to block scheduling to Outcome-Based Education to shared decision-making to scientifically-based reading instruction to Breaking Ranks II, school leaders can hardly be labeled passive protectors of the status quo. Despite all of this effort and work, sustained improvement continues to elude most school systems (Daggett, 2005; Fullan, 2003; Kohn, 1999; Fullan, 2005; Sarason, 1990).

Notwithstanding the tireless work of today's best educators, current school reform efforts have little chance of creating systemic, sustainable improvements in America's schools. Most current reform models, exemplars, and formulas systematically fail to synthesize the changing environment in which American schools operate or expose and challenge the implicit assumptions of both the culture and the function of American schools. The result is an incomplete or inaccurate sense of the current "mess" confronting American schools and, consequently, poorly designed solutions for resolving schooling issues.

Ackoff, in discussing traditional planning compared such practice to rain dancing: "Rain dancing has no effect on the weather even though it may have therapeutic effects on the dancers" (Ackoff, 1977, p. 36). This provides an apt analogy to current school reform. Despite mounting evidence that popular and traditional planning methods and solutions are not solving our school system problems reformers continue to rely on methodologies from inadequate conceptions of human systems in the hope that the right combination of reworked structures and processes will somehow fix the problems. In the end, these reforms provide only therapeutic value to those stakeholders seeking to feel confident about a perceived change in direction for schools. The "past is not prologue" when rapidly changing new paradigms of thinking and organizing people, industry and society overtake the United States (Banathy, 1991, p. 14).

This author's argument is that the heart of the issue is the failure of current reforms to adequately and fully explore and illuminate both the primary functions of the American school system and the implicit assumptions that have created

the American school system. This introduction provides a basic view of three generations of systems theory and suggests how traditional models, exemplars, and formulas for transforming the American schools fundamentally fail to approach problems from the third generation systems perspective. The socio-cultural or *Third Generation* systems paradigm refers to the current iteration of systems thinking that has evolved over three generations and roughly fifty years: Operations Research to Cybernetics to Idealized Design (Gharajedaghi, 2004, p.1).

To understand where traditional reform efforts fit and why they will most likely fail, it is important to first clearly define a "system" and then to briefly frame the three generations of system paradigms that exist in American thought today. Taken together, they represent an evolution of thinking and acting that has a profound influence on planning in both the problem definition and the solutions created. Since Senge's declaration that, "systems thinking is a conceptual framework, a body of knowledge and tools" (Senge, 1990, p. 7) in his best seller *The Fifth Discipline* in 1990, the word "systems" is used often by business people and educators, quite often, with little real understanding of the term and its possible implications. Since a car is a system, a horse is a system, and a school district is a system, each with its own unique set of operating principles, it provides little value or insight when someone demands that the system be examined. A deeper set of questions remain: How do we classify and attempt to explain differences in the systems we use and experience? Which type of system

are we attempting to describe? What is the best way in which to design and deliver that system?

First, a clear definition of a system: [italics in original reference] "*A system is a set of two or more elements that satisfies the following three conditions:*

1. *The behavior of each element has an effect on the behavior of the whole.*
2. *The behavior of the elements and their effects on the whole are interdependent.*
3. *However subgroups of the elements are formed, each has an effect on the behavior of the whole and none has an independent effect on it"* (Ackoff, 1999, p. 16).

Accepting this definition means that a system cannot be divided into its independent parts. Doing so causes both the part to lose key properties and the system to lose essential properties that none of the parts alone has or can produce (Ackoff, 1999, p. 16). This is true for all three generations of system thinking – mechanical, biological, and socio-cultural – although it is much easier to see such interdependencies in mechanical and biological systems. In a mechanical system like a car, removal of the fuel pump causes the pump to lose its ability to function and the car to lose its essential property – the ability to transport. In a biological system such as a human, removal of the eye causes the eye to lose its ability to see and the person to lose their depth of field. In a social system such as an orchestra, removal of the trumpet section causes the loss of the individual qualities of the trumpet players and the balance and harmony of

the orchestra itself. By themselves, they are unable to create the complex and beautiful music that they can produce together.

Mechanical, Biological, and Socio-Cultural Constructs

> *We see the world as increasingly more complex and chaotic because we use inadequate concepts to explain it. When we understand something, we no longer see it as chaotic or complex.*
>
> (Gharajedaghi, 1999, p. 25).

The ways in which people and organizations attack system problems are defined by these three distinct mental models: mechanical, biological, and socio-cultural. Knowledge of these mental models also offers a glimpse into why planning methods and approaches entrenched in the first and second-generation systems thinking, mechanical and biological, cannot propel education from its current state. To illustrate the distinctions between these mental models of systems, a more complete explanation of each follows.

Despite much rhetoric to the contrary, the first generation of systems, the mechanical view, is the prevalent mental model of system theory in America today (Gharajedaghi, 1999, p. 10). America's rise to power and prominence came from the ability to translate this worldview into a commercial success. The industrial age was defined by the belief that everything in the world would one day be explained through science; that through careful analysis of smaller and smaller parts, all the secrets of the universe could be unlocked. In essence,

mechanical thinking postulates that understanding is derived from taking a system apart and examining each part, explaining how the parts behavior separately, and then aggregating the understanding of the parts into an explanation of the whole (Ackoff, 1999, p. 17). America utilized this mental model of systems to create the greatest industrial nation in the world.

The basic assumption of the mechanical mental model is that by optimizing and making each part function as efficiently as possible, the function of the whole will be improved. The theory also assumes the parts operate in highly defined, highly predictable ways thereby allowing the designer complete control over the organization and its functions. Solutions to problems in this framework result from careful analytical study – identifying the malfunctioning part, applying a solution to that part to optimize the part's performance and, it is assumed, the system's performance. Success in the mechanical mental model is defined by efficiency and the ability of organizations to break down tasks to their most simple in order to ensure mindless, predictable repetition (Ackoff, 1991, 1999; Ackoff & Rovin, 2003; Gharajedaghi, 1999). The following serve as examples of this worldview: Ford's assembly line, Taylor's management principles, and the Committee of Ten (1893) that designed the current functions and structures of the American system of public education (Spady, 2001; Hock, 1999; Gharajedaghi, 2005b; Ackoff, 1999).

The second generation of systems, the biological mental model, emerged in the United States in mid-twentieth century and described organizations as living systems – analogous to the human body. The essential biological mental

model assumptions are that there must be a brain making decisions based upon feedback from the parts – each of which has a clear and specific function. Each part's job is to function as effectively and efficiently as possible, providing performance feedback to the brain in order that the brain may make decisions in the best interest of the organization. This view modified the mechanical mental model only incrementally. The only substantial distinction was the view that the *parts* in an organization could provide valuable feedback. In this respect, organizational theory moved from mindless to uni-minded. Like an organism, the measure of organizational success was growth and it created a paternalistic business culture – one in which people felt they had a job for life, the CEO was a revered figure, and the organization strived to become bigger and bigger (Gharajedaghi, 1999, p. 11).

This systems-view gave rise to the Alfred Sloan School of Management – a divisional structure in which powerful leaders dictated and controlled the various systems of the organization, seeking feedback as deemed appropriate from the workers and divisional parts of the organization. This mental model also created the concept of Operations Research as developed by Churchman and Ackoff (Ackoff, 1999, pp. 316-318).

The third generation view, the socio-cultural mental model, is a qualitatively different way of conceptualizing and explaining system behavior and is one more adequately suited to working with human systems like schools. Gharajedaghi defines a socio-cultural system as, "a voluntary association of purposeful members who themselves manifest a choice of both ends and means"

(Gharajedaghi, 1999, p. 12). This view reverses the mechanical mental model in several ways. The socio-cultural conception of a system:

1) Treats systems of people as people and not mindless parts capable only of rote repetition or feedback. People have minds and they use them – they have choice in both the ends they pursue and the means they implement to achieve those ends;
2) Postulates that understanding of the whole can only be accomplished through synthesis – identify the containing systems of which the system being examined is a part, explain the behavior of the whole system itself, then explain that system's roles or functions within the greater whole;
3) Recognizes that organizations have cultures analogous to biological DNA and, as such, organizational culture seeks to continually reproduce its existing image unless the cultural *DNA* itself is altered. (Ackoff, 1999, p. 17; Gharajedaghi, 1999, p. 16)

From the socio-cultural mental model of systems, system performance is a product not of the actions of the individual parts but of the interaction of those parts (Ackoff, 1999). If the interaction of the parts is key to understanding and improving system performance and if people who make up socio-cultural systems have choice in both the ends they strive for and the means to achieve them then the ramifications of treating systems of people like either mindless machine parts, (first generation) or biological parts capable only of providing feedback, (second generation) must be questioned. While first and second

generation systems thinking fails to consider the importance of interdependencies, choice, and the power of the organization's embedded culture, defined as a set of shared beliefs and values, third generation systems thinking posits that without careful and complete consideration of the current context and assumptions that drive the culture no substantial and lasting change can occur. As a result, third generation systems thinkers assume that no solution is context-free and the development of such solutions is the dream of professional consultants (J. Gharajedaghi, personal communication, April 11, 2005). Finally, the socio-cultural systems view measures success in how the organization and its members develop. Unlike growth, development is, "an increase in one's ability to satisfy one's own needs and 'legitimate' desires, as well as those of others" (Ackoff & Rovin, 2003, p. 151).

Educators wishing to study public school reform models are encouraged to ask, "What are the underlying assumptions that drive this model? What systems-view does this model emanate from?" From such questions, it can be relatively easy to discern the designer's systems thinking paradigm. "There is nothing wrong with coming up with a different model if we are able to examine the underlying assumptions. Make the assumptions (that) were gone through to generate the model explicit" (J. Gharajedaghi, personal communication, April 11, 2005). The point in examining the various school reform models isn't to challenge any particular structure or process proposed but to attempt to capture the underlying assumptions that undergird the model and to ensure that relevant assumptions have been exposed and held up to scrutiny. To understand any

model or system requires careful examination and elucidation of the implicit assumptions at work in the system. It is these assumptions that create, by default, repetition of the same solutions and results (Ackoff, 1999; Fullan, 2001; Gharajedaghi, 1999; Hock, 1999; Leddick, 2004).

The single greatest flaw in most school improvement models proposed today is the notion that if each part – reading, mathematics, the high school, leadership, etc. - is designed in the most efficient and effective manner, the overall system will improve. This is clearly a mechanical mental model assumption – analyze a part and build structures and processes to improve that part, thus improving the functioning of the entire system. Such an approach led educators like Fullan to declare, "the main problem is not the absence of innovations but the presence of too many disconnected, episodic, piecemeal, superficially adorned projects" (Fullan, 2001, p. 109). If the key lies in the interaction of the parts - the elementary with the middle school with the high school with the district, etc. - then isolating the high school part or the reading part for improvement and redesign is a strategy destined for failure. As a society, we continually apply mechanical solutions to socio-cultural system problems in schools, despite a fifty year record of failed school reform (Ackoff, 1999, pp. 150-151).

While a few authors and researchers have provided a rationale and, in some cases, a basic methodology for redesigning schools, such approaches continue to sway on the fringes of the debate, particularly among policymakers and educational leaders at the state and national level. It appears that the

American desire for quick and easy solutions to complex problems continues to hamper American education. Government mandates with a mechanical, analytical focus on solving individual problems like reading or large-scale test score improvement creates a set of similar non-solutions to an interacting set of problems. As Gharajedaghi stated, "When one game states the rules for all games, it doesn't matter how many new games you create, they're all the same kind" (Gharajedaghi, 1999, p. 26). Spady argued similarly when he stated that strategic planning simply creates new goals and action plans for the same set of programs and structures that have created the education system currently in place (Spady, 2001, p. xi). It is this author's intent to investigate whether new system models hold the possibility of transforming conceptions of and conversations about the educational system.

Purpose of the Study

The author examined the impact on two school districts when using a socio-cultural approach to redesigning the districts, specifically Idealized Design as formulated by Ackoff, Gharajedaghi, and modified for education by Leddick. Idealized Design is a process for operationalizing the most exciting vision of the future that the designers are capable of producing. It is the design of the next generation of their system to replace the existing order (Gharajedaghi, 1999, pp. 129-130). This study examined the question, "Does the Idealized Design process demonstrate an effective and workable process for fundamentally changing the

conversation about schooling among design participants?" Specifically, the author sought answers and insights to the following:

- Do participants in the process view the issue of school reform differently as a result of their experience with Idealized Design methodology? If so, in what ways?
- Can a community change their conversations about school improvement and the "Next Generation" of their schools through this process?

The study examined two small but growing Iowa school districts engaged in a third generation systems planning approach known primarily as Idealized Design to discover if such an approach holds promise as a viable alternative to reform and planning efforts currently employed in school systems. The creators of Idealized Design, system scientists Ackoff and Gharajedaghi, developed not only a theory for how social systems function but a clear and comprehensive methodology for transforming organizations capable of learning and adaptation. School systems are arguably the most complex social system in our culture today and, in order to meet the needs and demands of today's world, must be capable of learning, adaptation, and the production of results across multiple functions. Idealized Design represents a promising approach for planning to meet these challenges (Gharajedaghi, 1999; Ackoff, 1999).

The author's assumption is that, while well-intentioned, traditional planning and reform efforts fail to adequately address the complex and multiple dimensions comprising a social system and, as such, results in cyclical

recreation of the same problems (Gharajedaghi, 1999). Utilizing outdated mental models based primarily upon either mechanical or biological conceptions of systems results in minor or temporary improvements while leaving the deeper assumptions and practices of the organization untouched. The result is known to practicing educators as the pendulum swing whereby one new practice is replaced shortly thereafter by another, often opposite, practice which is replaced shortly thereafter by a reconstituted version of the first practice. Idealized Design's subtle but important distinction from more traditional planning methods is that this process purports to remove the causes of the pendulum swing, and thereby its effects on the people and the organization. Such cycles can lead designers to view systems as chaotic and complex. As Gharajedaghi states, "When we understand something, we no longer see it as chaotic or complex" (Gharajedaghi, 1999 p. 25). Such thinking implies that designers must re-conceptualize the mental models used in design.

This author's hypothesis was that in order to effectively redesign schools able to adapt and function in today's environment, communities must surface and deal with implicit assumptions and habitual practices in order to create new designs and then bring those designs to reality through a succession of approximations (Leddick, 2004). In order to effectively do this work, schools and communities can no longer rely on models with inadequate understandings of the complexities of social systems and the implications they have on the interactions of everything and everyone in the system.

The leadership of the two districts involved in this study recognized that continued efforts to meet the requirements of state testing, student achievement, professional development, special education, and other mandates and expectations were causing feelings of frustration, loss of empowerment, and a lost sense of control among the stakeholders. They sought out and secured a grant to pursue a planning process to help their communities construct the Next Generation school district for their communities. While quite successful with several examples in the for-profit and not-for-profit world, the primary developers and practitioners of the methodology have but one public school example in Connecticut. This study sought to further explore the potential impact of Idealized Design and socio-cultural systems thinking on school reform efforts. Additionally, it sought to discover if Idealized Design had the ability to help communities grapple with the changing landscape of public education and what it means to their children and community.

This study focused upon the participants in the process of re-design that evolved over a period of twelve months from April of 2005 through March of 2006. The project, funded by a Wallace Foundation grant through the State of Iowa, in-kind and financial contributions by Grant Wood Area Education Agency, The Midwest Center for Innovation and System Design, and the Mount Vernon and Clear Creek Amana Community School Districts, was designed to provide Iowa schools with an alternative to traditional school reform efforts. The grant sought to explore school governance structures in particular. The grant identified six (6) primary tasks:

1. Analyze current governance structures within each district;
2. Create school/community consensus as to an "ideal" structure within which their schools should operate;
3. Identify barriers to achieving the ideal and triaging those barriers according to those that could be overcome: a) immediately, b) following additional district planning, or c) with modification of state/national policies and/or legislation;
4. Develop solutions for changes that could be made by districts and recommendations for state policy/legislative changes;
5. Implement solutions, assess their impact and improve upon the solutions through successive approximations;
6. Develop and disseminate project findings to assist the Iowa Department of Education and other districts in creating systems that allow administrators to focus on effective leadership. (The Wallace Foundation & The Iowa Department of Education, 2004, p. 6)

This study focused on the first two steps of the Idealized Design process – problem formulation and design specifications. The study was a qualitative, exploratory case study of how participants perceived the process. The author observed and participated in each step of the process, took explicit and detailed notes of the proceedings and conversations, and interviewed or surveyed 15 of the 28 participants after both the mess formulation stage and the first iteration of the design stage of the Idealized Design process. The Planning Team included the superintendents and district administrators as well as teachers from

elementary, middle and high school levels, board members, parents, and members of the business community. Superintendents from both districts, a building administrator and teacher from each district, and a board member from each community were interviewed. The author desired to hear from as many perspectives as possible in order to draw out consistent themes, feelings, responses and conclusions from those participating in the study. As a result, the author surveyed those Planning Team members not directly interviewed through a written survey. Interviewees were selected randomly based upon their role in the school district and community to ensure as representative a sample as possible in order to expand the author's understanding.

Definition of Terms

The terms and definitions below are included to provide clarity for the reader:

AEA is the abbreviation for the Area Education Agency. The AEA's in Iowa are intermediate agencies designed to provide school improvement assistance as well as educational media and special education services to local school districts.

Planning Team is the group of individuals assembled by each community included in this study to serve as the representatives to the community in the redesign effort of the schools.

Idealized Design is a process for operationalizing the most exciting vision of the future that the designers are capable of producing. It is the design of the next

generation of their system to replace the existing order (Gharajedaghi, 1999, pp. 129-130).

Third Generation Systems Theory refers to the current state of systems thinking that has evolved over three generations and roughly fifty years. Third Generation Systems theory implies Idealized Design (Gharajedaghi, 2004, p. 1).

Function defines the outcome, or results produced, which is also synonymous with outputs, ends, and effect (Gharajedaghi, 1999, p. 110).

Structure defines components and their relationships, which in this context is synonymous with input, means, and cause (Gharajedaghi, 1999, p. 110).

Process explicitly defines the sequence of activities and the knowledge and skills required to produce the outcomes (Gharajedaghi, 1999, p. 110).

Mess Formulation is a process allowing for the uncovering of the future implicit in the present behavior of a system. It involves a three-stage process of searching, mapping and telling the story (Gharajedaghi, 1999, p. 119).

Chapter 2

REVIEW OF LITERATURE

It is noteworthy, indeed symptomatic, that the proponents of educational reform do not talk about changing the educational system. . . In what ways do our recommendations differ from those made by comparable groups twenty or even fifty years ago?

(Sarason, 1990, p. 13)

Introduction

This literature review examined the evolution of systems thinking and how school reform efforts are defined and categorized by their implicit or explicit system views of the world. An initial review provides an historical context for both educational reform efforts and the emergence of systems science and systems thinking, particularly through the works of arguably the two fathers of modern social system theory, Ackoff and Forrester. It is proposed that systems thinking evolution has significant yet unrealized implications for the educational system in the United States. The evolving environment of a "flat world" (Friedman, 2005, p. 5), the transformation from a national industrial to an international information economy, requires a new view of social-system organization and change, argue leading system scientists. These simultaneous changes in both the way in which we see the world and the way in which we attempt to understand it have

substantial implications for school reform. Such an environment creates a context for this study's research questions, conclusions, and recommendations.

A Changing Game in Education

The history of educational reform in the United States resembles the recurring political patterns the country experiences as it flows from more conservative to more liberal and back again over time. Educational reform experiences similar pendulum swings of ideologies and structures (Hunt, 2005; Elmore, 1997; Tyack, 1990). Historically, reform periods in education correlate with larger national issues related to social or economic stresses. Added to the stress placed on education to help the nation respond to social crises are implicit assumptions held by American society: (1) that all social problems are solvable and; (2) schools are the panacea for solving those social problems (Hunt, 2005; Tyack, 1990; Ravitch, 2003).

Calls for reform and restructuring have been constant topics in educational discussions for over 100 years. At the dawn of the twentieth century debate raged about whether small, one-room schoolhouses or large districts were better for educating children. At the core of this debate was the notion of centralization versus decentralization. At that time, the focus was on whether schools should be run by their communities or by professional educators (Tyack, 1990). Recent history suggests that the struggle between centralization and decentralization pits either the school against the district office or the district against the state and federal government (Elmore, 1997; Tyack, 1990). In either case, such

dichotomous thinking is a consistent reality in American educational policy and debate. This thinking is derived from the assumption of a zero-sum game – that one must lose for another to win (Gharajedaghi, 2005b). The content of the argument may periodically change but the essential nature of the question of centralization or decentralization has been a core issue in American educational reform and debate from its inception (Tyack, 1990).

In addition to the ongoing issues of centralization versus decentralization, America's educational debate regarding reform and restructuring has consistently cycled through common themes including:

- Competition, markets and school choice.
- Teacher professionalization and empowerment.
- National standards, uniform testing, and deregulation.
- Forms of accountability.
- Curricular and instructional content and change (Tyack, 1990; Sternberg, 2000).

Contemporary Design of Schools in the Machine Age

As the United States began its migration from an agrarian to an industrial economy in the late 19th century, business and educational leaders of the day recognized the need for schools to provide both a way to integrate the burgeoning number of immigrants into American culture and to prepare a workforce for the industrial age. Some point to the 1893 Committee of Ten as the genesis of the modern school system (Spady, 2001; Ravitch, 2003; Banathy,

1991). What is significant is not necessarily the Committee itself, as there were many committees formed around education in the early 20th century (Ravitch, 2003) but that this was a period in time when the Machine Age, as described in Chapter One, was the dominant worldview. This reductionist view of the world as a big machine that could be understood through analysis of the parts was working beautifully for American business at this time. The Machine Age mental model became the default organizational design for schools. It was a natural, understandable, and effective solution for the time (Spady, 2001; Tyack, 1990). Schools, by default or design, were organized through, "tightly controlled, orderly, standardized, direct instruction. . . exam driven, centralized curriculum and instruction" structures and processes (Tyack, 1990, p. 176).

It is important to note that the Machine Age conception of schooling is one constant organizational assumption left largely unchanged and unchallenged throughout the history of educational reform efforts (Spady, 2001; Ackoff, 1999). While educational reform has been a consistent theme for the last 100 years, this organizational construct has remained. Hunt identified many of the educational reform efforts thought to be, at various and recurring times, the panacea for American schools and society: more rigor, stronger science and math, character education, basal readers, open education, accountability, equity of access, modular scheduling, and site-based management, to name only a few (Hunt, 2005).

As the American school system developed during the 20th century the calls for reform and restructuring became a constant battle cry. During the first 50

years of the 20th century the *administrative progressives* helped to shape American education. Their focus was on producing efficiency, equity (although in reality serving Caucasian and Protestant students), accountability, and professional expertise. Such a focus created a culture and a design analogous to the factory model: tight centralization and standardization of process. The goal was to centralize decision making and standardize work into efficient, repeatable, mindless repetition to control the process. This classical scientific notion of simplifying and separating things to their core elements led to the creation of separate subject-area curricula and organization of the school day on tightly controlled time schedules whereby the product (students) was moved through the building to the workers (teachers) in forty or fifty minute segments with the hope of creating a uniform product. Since mechanical systems abhor variation, students who didn't fit were assumed to be faulty and were excluded or counseled out of the system. The underlying assumption was that the problem was in the product and not the system (Spady, 2001; Ackoff, 1999; Tyack, 1990).

Implicit in the administrative progressives' conception of education was that not all children were capable of high academic achievement and that schools needed to prepare them for their lot in life. Intelligence Quotient (IQ) tests and other instruments were used to differentiate students by inherent ability to track them into programs deemed appropriate for them. This was referred to as *rational planning* (Tyack, 1990). Educational reform during this time and well into the 1970s and 1980s focused on structure and process with little regard for student outcomes, due in part to the underlying assumption that some students

would be successful and some would not. American society accepted this notion because its industrial economy offered jobs for the marginally educated. Therefore, a person's economic future was not completely dependent on education. The manufacturing sector was able to employ the students who were not successful in the educational system and provide them with solid middle-class lifestyles (Spady, 2001; Tyack, 1990).

The first large-scale and highly public national debate on schooling came on the heels of the Sputnik launch in 1957. As a reaction, America demanded that schools provide a stronger science and math curriculum. Education's response was to increase graduation requirements and math and science credits (Spady, 2001; Tyack, 1990).

The 60's and 70's saw schools respond to the changing social times by offering a wider and wider curriculum – often considered "soft" and non-academic. The result, some argue, was the watering down and "dumbing-down" of our nation's youth (Ravitch, 2003). Again, the assumption that schools could solve society's ills fueled the public's desire for and acceptance of schools taking on more and more programs and learning responsibilities (Ravitch, 2003; Hunt, 2005). What did not change, however, was the basic assumption that the best organizational structure rested with the Machine Age view of the world complete with its structures, functions and processes.

Many mark publication of the *A Nation At Risk* in 1983 as a watershed event in American educational history. The report helped to change the educational game from one of equity of opportunity and access to one of equity

of results (Ravitch, 2003; Schlechty, 2001; Spady, 1983; Spady, 2001; Tyack, 1990; Fullan, 2001; Hunt, 2005). Mission statements across the country reflected this change of game with common concepts summarized in statements such as "all children can learn" (Ravitch, 2003). Education's response was similar to that which occurred when Sputnik was launched in 1957; to increase graduation and core curriculum credit requirements (Spady, 1983, 2001).

The game had indeed changed. Since 1983 American education has been focused on reformation through an accountability-based system, resting largely on the back of the standards-based movement (Spady, 2001). Twenty-three years after *A Nation At Risk* America's schools continue to attempt reform and restructuring through predictable and well-known constructs with minimal effect on how:

- the classroom teacher teaches
- administrators run the schools
- children experience school
- curriculum and instruction is organized
- students are assessed

(Tyack, 1990; Spady, 2001; Ackoff, 1999)

Some educators and researchers point to the continued failure of school reform as a vestige of schools and society simply re-conceptualizing old solutions and expecting different results (Gharajedaghi, 2005b). School reform solutions in the Machine Age paradigm mean trying to do things faster and better, providing more rewards and punishments, focusing on single cause-effect relationships,

such as more science credits being predictive of higher scores on standardized tests, and attempting to patch new ideas and programs onto an old system (Tyack, 1990; Spady, 2001; Ackoff, 1999; Gharajedaghi, 2005b; Sarason, 1990; Banathy, 1991). This led Sarason to recognize:

> "what should have been obvious: the characteristics, traditions, and organizational dynamics of school systems were more or less lethal obstacles to achieving even modest, narrow goals. . . the failure of educational reform derives from a most superficial conception of how complicated settings are organized: their structure, their dynamics, their power relationships, and their underlying values and axioms" (Sarason, 1990, p. 12).

Some educators and systems scientists are calling for a redesign of American education around organizational assumptions that are more true and accurate for our times than the outdated Machine Age view of the world. While these system proponents remain largely on the periphery of the discussion, there are indications that American schools and communities are moving closer to challenging their implicit assumptions about how schools are organized and conceptualized. The next step is in discovering alternative ways to view the world and organize schools to meet the new demands facing America (Ackoff, 1999; Banathy, 1991; Caine & Caine, 1997; Duke, 2000; Fullan, 2005; Gharajedaghi, 2005b; Hock, 1999; Holly, 1990; Jenlink, 2002; Joseph, Jenlink, Reigeluth, Carr-Chelman, & Miller Nelson, 2002; Kohn, 1999; Levine, 2004, 2005; Sarason, 1990; Shantz & Rideout, 2003; Spady, 1998, 2001; Sternberg, 2000).

A Brief History of Modern Systems Science

An examination of the history of modern systems science arguably began with Singer who, during the years 1896 to 1903, was among the first scientists to openly challenge classical reductionist science. Singer argued that any probability less than 1.0 demonstrated that the cause was not identified since, by definition, a cause completely determines effect (Ackoff, 1999, p. 21). Microsoft's online Encarta Dictionary defines cause as: "to make something happen or exist or be the reason that somebody does something or something happens." For example, if a study were to demonstrate that eighty-five percent of students improved their retention of math facts using a particular memorization strategy one cannot say that the math strategy caused the retention of math facts on its own. The fact that fifteen percent did not improve indicates that other causes are at play. Singer's simple argument opened the door for the emergence of modern systems science. Its lineage can be traced to his work.

Singer's student, Churchman, converted Singer's basic theories into a new science of systems during the middle and late 20th century. Ackoff, Churchman's first doctoral student, worked with Churchman to develop Operations Research and then, later, the notion of Idealized Design. Ackoff's influence and thinking moved social systems science forward in significant ways and he became one of the key figures in the systems science field (Ulrich, 2002).

Ackoff: Operations Research and Idealized Design

Ackoff's interest in systems thinking stemmed from a background in architecture and philosophy. These two disciplines caused him to explore the notion of design as applied to the lives of people and organizations (Gharajedaghi, 2006). Ackoff first took the notion of systems thinking and attempted to apply it using the scientific method. This created the field of Operations Research (Ulrich, 2002). In 1974, after nearly two successful decades of Operations Research and witnessing the concepts coming to fruition as academic disciplines in universities across the country, Ackoff denounced Operations Research and began a steady and swift movement to the principles now referred to as Third Generation systems thinking or, Idealized Design (Ackoff, 1999). Since 1974 Ackoff and his students and colleagues have worked to further define, implement, and accelerate systems thinking and design.

Ackoff's basic systems tenet is holistic thinking – seeing the inter-relatedness of all the parts that create a whole – as the key to understanding and designing social systems. This change in thinking requires a movement from the purely analytical to thinking synthetically first, and then analytically, Ackoff argues. Such a shift allows for better understanding of purposeful systems – systems in which the parts (people) have purposes of their own (Ackoff, 1999). From this basic idea, Ackoff developed Idealized Design. Idealized Design involves two important elements: problem formulation and the design of a preferred future state. Using the notion of inter-relatedness Ackoff endeavored to uncover implicit assumptions that, by default, continually re-create the existing

system. This work results in a map of the current inter-related conditions causing the system to remain in its current state. Designers then create a new design based upon the assumption that the system was destroyed overnight and a new system must be created to replace it (Ackoff, 1999).

Ackoff's most influential protégé is arguably Gharajedaghi. Gharajedaghi, in his recent publications, has further developed Ackoff's basic methodology by attempting to pull together the dominant and long-standing theories, philosophies and approaches of systems science into a coherent whole, including one of the first complete methodologies for creating such designs. Such work has won Ackoff's praise and favor (Gharajedaghi, 2005b). The systems dynamics work of Forrester and his colleagues at the Sloan School of Management at the Massachusetts Institute of Technology (MIT) represent the second major systems movement in the last century and runs parallel to that of Ackoff's.

Forrester: Systems Dynamics

Forrester, the father of systems dynamics, has had a profound effect on the systems thinking field. His students and colleagues include Senge, author of *The Fifth Discipline,* and Richmond who pioneered the STELLA® systems mapping software. Forrester entered the systems field through technology. He was one of the pioneers in the development of the digital computer in the mid-20th century. From this engineering background Forrester moved to MIT and eventually the Sloan School of Management. While there, he developed an interest in how engineering principles could play a role in improving leadership

and management practice. He found himself at a crossroads, having to decide whether to work on exploring the use of computers to improve management or to join the newly conceptualized Operations Research work. He chose Operations Research and began conducting simulations to solve problems seeming to have no clear cause-and-effect. Such problems are commonly identified as counterintuitive problems. For example, he researched a General Electric problem that involved production plants going from three or four shifts a day to layoffs a few years later and then back to full shifts again. Systems dynamics was born when Forrester discovered how to more effectively map non-linear system behavior, such as that exhibited in counterintuitive problems (Forrester, 1989).

The discovery that non-linear systems could be mapped created a lifelong passion for Forrester as he sought to develop ways to help leaders better understand the complexities and inter-relationships of the systems they were attempting to lead. Forrester came to believe that by mapping out the dynamics of an open-looped system one would make better leadership and management decisions and, as a result, create stronger organizational systems (Forrester, 1989).

Over the years, the division between Forrester's strong belief in systems dynamics and Ackoff's systems thinking and design widened. Systems dynamics focused on scientifically mapping to understand organizational complexity while systems thinking focused on finding ways to apply system principles to the redesign of organizations. The primary argument between the two camps

appeared to be over whose work and theories were more important, primary, and relevant (Forrester, 1992).

Richmond was among the first to publicly propose that systems thinking and systems dynamics were complementary and equally important. In 1994, Richmond argued in a keynote address to the Forrester faithful that systems dynamics didn't hold dominance over systems thinking. Rather, Richmond argued, they were a complementary set and if the profession was to move forward this realization and the work surrounding it had to begin. While praising Forrester as the father of systems science Richmond argued that systems thinking and systems dynamics were different dimensions of the same thing: "the overlap is very substantial, and the differences are more in orientation and emphasis than in essence" (Richmond, 1994, p. 3). While Richmond would continue his focus on making systems dynamics concepts more approachable, his raising the question regarding the melding of the Ackoff and Forrester camps proved an important step.

In 1996, Lee of MIT extended Richmond's argument by publishing his reflections on Ackoff's Idealized Design. This was significant because of Lee's affiliation with MIT and systems dynamics. Prior to this research and other writings Lee had become friends with Gharajedaghi. Lee believed Gharajedaghi to be the person most capable of re-conceptualizing these two system views into a coherent whole. Lee continually pressed Gharajedaghi to be the one to galvanize the two camps (Gharajedaghi, 2006).

Gharajedaghi: Synthesizing Systems Thinking

In 1999 Gharajedaghi wrote the first edition of his work, *Systems Thinking*. It advanced the theories of Ackoff and, as a result, those of Churchman and Singer. As a promise to a dying friend, Lee of MIT, Gharajedaghi sought to more completely integrate systems thinking with systems dynamics and advance the systems science movement by an order-of-magnitude. In December of 2005, Gharajedaghi's 2nd edition was published which, Gharajedaghi and Ackoff believed, successfully integrated the Ackoff and Forrester traditions (Gharajedaghi, 2006).

Figure 2.1 summarizes the lineage of modern systems thinking , which points to Gharajedaghi as the only current social systems theorist to have developed and published a documented design methodology integrating both Ackoff and Forrester's work. It is important to note that this brief history fails to mention the myriad of influential contributors to the broad field of systems thinking. The intent is not to slight these valuable members of the systems community and the contributions they have made to this line of thought and inquiry but to enunciate the tight lineage of the key players in the development of modern systems thinking, particularly the methodology utilized in this study. To discuss the contributions of systems thinkers such as Capra, Fritz, Hock, Argyris, Banathy, Senge, Wheatley and others would be an interesting study, but also a diversion from the essential argument of this review

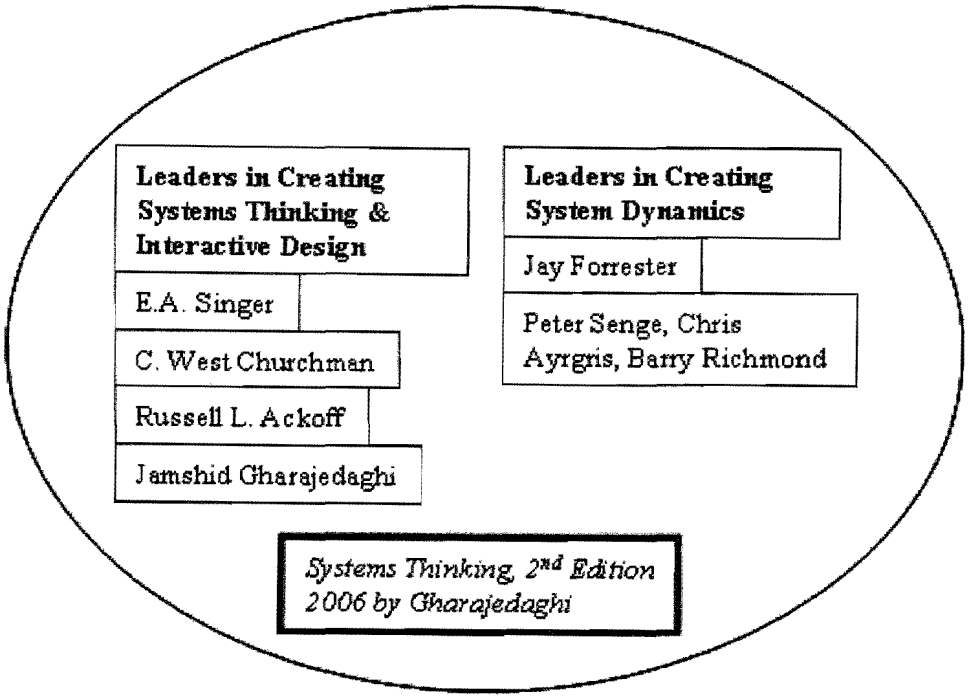

Figure 2.1. Lineage of modern systems thinking.

Socio-Cultural Systems Methodology: A Closer Look

> *The principles of classical management theory have become so deeply ingrained in the ways we think about organizations that for most managers the design of formal structures, linked by clear lines of communication, coordination, and control, has become almost second nature. . . this largely unconscious embrace of the mechanistic approach to management is one of the main obstacles to organizational change today. (Capra, 2002, p. 103)*

Chapter One explored three distinct system constructs – the mechanical, the biological, and the socio-cultural. This segment examines socio-cultural systems theory as it pertains to the problem formulation stage of the redesign process. Gharajedaghi defines a socio-cultural system as, "a voluntary association of purposeful members who themselves manifest a choice of both ends and means" (Gharajedaghi, 2005b, p. 12). Such a definition acknowledges the complexity of a system whose human members all have choice. A system made of people who have minds and use them calls into question solutions ignoring this important consideration. As discussed previously, applying mechanical or biological solutions fails to appreciate that the parts have choice and freely exercise that choice. Recent literature demonstrates a growing interest in the role of culture in organizational improvement and an emerging understanding of the influence of system design. For the social system, it is culture that holds the secret to understanding the set of simple but powerful rules that govern social behavior (Bolman & Deal, 2003; Burt, 1992; Caine & Caine, 1997; Fullan, 2001; Gharajedaghi, 2005b; Lambert, 1998; Sarason, 1996).

The components of Third Generation systems methodology are highly inter-related and, according to Gharajedaghi and Ackoff, necessary for the development of a coherent social system – one that acknowledges the choice of the people in it. The graphic in Figure 2.2 provides a concise picture of the key elements of the Interactive Systems model as defined by Gharajedaghi and Ackoff. While this study focuses primarily on the *Defining Problems &*

Opportunities/Formulating the Mess segment, it is important to see the full complement of components and elements.

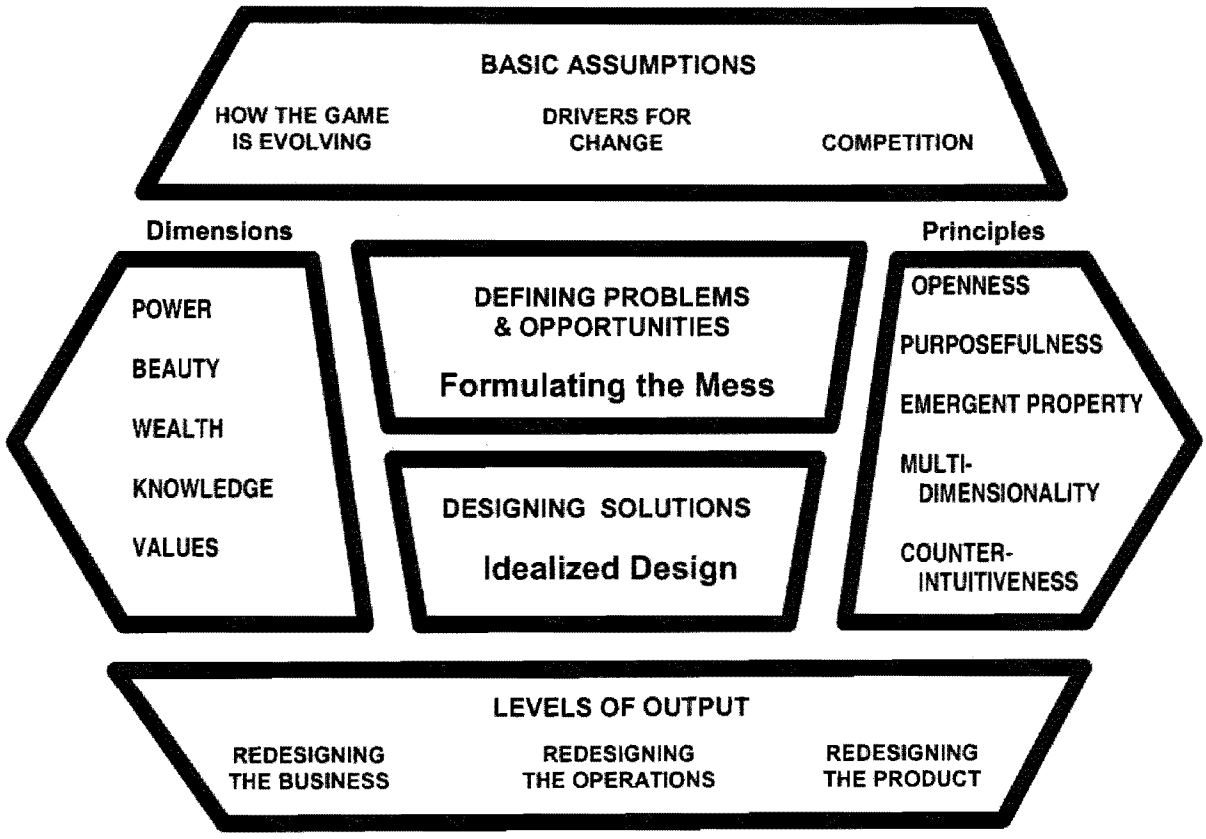

Figure 2.2. Interactive systems model (from Gharajedaghi, 2005b).

Organizational Culture and Social System Dimensions

A social system's culture is analogous to a human's DNA. Social organizations, like biological systems, are living systems capable of self-organization (Capra, 2002). Biological systems utilize DNA as their organizing set of instructions allowing for self-organization. Social systems use culture

(Gharajedaghi, 2005b). Like DNA, whose genetic codes pass from one generation to the next, a set of cultural codes – ideas, practices, beliefs, knowledge, and assumptions about reality – are passed down through time *via* the culture (Fullan, 2001; Bolman & Deal, 2003). Culture, then, defines the way in which an organization approaches its environment and faces its problems.

Bolman and Deal (2003) suggested that culture must be reframed or reformed through knowledge of cultural myths, symbols, and ceremonies. People in the system then use that knowledge to restructure the organization into a new culture. Fullan (2001) argued that it is re-culturing – changing the core values about "how we do things around here" and not simply restructuring that is necessary to transform organizations. Gharajedaghi (2005) argued that culture is coded either by default or by design and that only through a clear methodology founded in socio-cultural systems science can culture be redesigned to dissolve existing problems and conflicts– one that focuses holistically on functions, structures, and processes (Gharajedaghi, 2005b).

The power of the dominant culture is argued by many leading social system and leadership thinkers to be the primary constraint in successfully changing, transforming, reforming, or restructuring organizations. As such, it has become a major emphasis of thought, theory and research (Ackoff, 1999; Banathy, 1991; Bolman & Deal, 2003; Caine & Caine, 1997; Fullan, 2001; Gharajedaghi, 2005b; Hock, 1999; Holly, 1990; Laszlo, 1996; Forrester, 1989; Johnson, 2001; Zmuda, Kuklis, & Kline, 2004).

What defines or constitutes a culture? What dimensions or aspects of organizational culture exist? Which elements are most dominant or provide the most leverage for change? Such questions trace back to the ancient philosopher Aristotle, who posited that a full and complete life had to account for five principles or dimensions: virtue, beauty, truth, wealth, and power. Aristotle argued that these five principles all had to be fulfilled in order for a person to lead a good life. Aristotle's understanding that man and his culture were deeply intertwined led him to describe how a society must help the individual attain these five dimensions of life. For Aristotle, virtue had to do with how people dealt with themselves and others as they worked to achieve a level of harmony. Beauty dealt with man's desire to feel fulfilled and to be a creator – to do because of the inherent joy it brings to the individual. Truth meant that man was driven by a desire or thirst for knowledge, both communal and individual. Wealth meant the ability to acquire resources in order to provide for one's health and expand one's opportunities. Finally, power dealt with man's ability to organize and manage societal laws and customs to ensure maximum freedom within the confines of an orderly society (Adler, 1978).

The American philosopher Dewey also described five elements of a culture in 1939 when he identified politics, economics, science, art, and morality as key to a well-functioning culture. Dewey argued that these five aspects of culture helped to define society and how it functions (Dewey, 1939, p. 180). Politics dealt with notions of power and control, economics with the creation and distribution of wealth, science with the acquisition of knowledge, art with the

aesthetic part of life, and morality with the way in which people choose to define their interactions and resolve conflict (Dewey, 1939).

Gharajedaghi identified the same five dimensions that Aristotle had originally identified: truth, beauty, values, power, and wealth as the complementary set of dimensions that comprise a social system. These dimensions are identified in the left hand box in Figure 2.2. Gharajedaghi argued that sub-optimization in any one of the dimensions ripples through the other four causing an interaction in which solving a problem in one dimension does not improve the overall system and, in fact, might make things worse. Improving one dimension without improving the whole set leads to sub-optimization in the system (Gharajedaghi, 2005b).

While many prominent social thinkers, as well as educational leaders, consider more than one of the dimensions enunciated previously, most have chosen a dominant dimension and worked their solution or design in that direction (Gharajedaghi, 2005b). For example, Marx focused the problem and the solution around the notion of wealth – the production and equitable dissemination of money and profits. Weber's focus was on power – notions of legitimacy and who decides. Religious thinkers tend to place emphasis on values (Gharajedaghi, 2005b). In the educational arena Sarason, while recognizing other dimensions, focused on power as the dominant or primary dimension to be addressed (Sarason, 1990). Fullan, like Sarason, grasped the need for a comprehensive systemic re-evaluation and identified moral purpose – values – as the dimension missing in most reform (Fullan, 2003). Zmuda, Kuklis, and Kline

focused on systems through the continuous improvement of throughput processes – the dimensions of acquiring and converting knowledge to the production of wealth [learning] (Zmuda et al., 2004). Schlechty effectively identified the five dimensions necessary to form a coherent social system and places engagement – the beauty dimension – at the core of the argument (Schlechty, 2001). Bolman and Deal's organization frames focused on three dimensions: (1) the political frame (Power); (2) the human resources frame (Beauty) and; (3) the symbolic frame (Values) (Bolman & Deal, 2003).

Third Generation Systems theory argues that all five dimensions must be explicitly understood and dealt with as a complementary set by the designers. They are not to be treated as or organized into a hierarchy. As such organizational design must work to dissolve conflicts and problems across all the dimensions. Gharajedaghi argued, for example, that simply correcting a problem in the distribution of the wealth dimension will do little to increase or change organizational issues related to:

- workers' sense of engagement and excitement in the work
- poorly managed organizational and personal conflict resolution
- disconnections between personal and organizational value
- mal-distributed or unclear notions of who decides (Gharajedaghi, 2005b).

The Power of the Default Culture

All of the authors discussed in the previous section, as well as a multitude of others, attempt to deal with culture in one way or another as it relates to

organizational improvement and change. As Gharajedaghi has argued, it requires careful attention to not one or two but all five dimensions of a social system to produce a culture capable of learning, adaptability, and development. Rather than an analytical approach to culture and problems, socio-cultural thinking appreciates the role of synthesis in understanding culture. As such, dealing with the inter-related wholeness of the cultural dimensions is possible (Gharajedaghi, 2005b). As Gharajedaghi has stated, "man creates his culture and his culture creates him" (Gharajedaghi, 2005b, p. 85). Bolman and Deal define culture as the way things get done, while Fullan argued that change is about re-culturing the organization (Bolman & Deal, 2003; Fullan, 2001). Regardless of the author studied, the construct of culture is central to current discussion of organizational change.

It is this shared image of how things are done, what people do and say, and how the organization and its people respond that creates the culture. Once in place, culture can be difficult to change, alter, or even make explicit (Gharajedaghi, 2005b). As mentioned earlier, culture is a social system's DNA and, as such, is not easily altered. It is only through altering or changing the shared image that the culture can change. Cultures, then, act as default decision systems. If the members fail to decide, the culture decides for them (Gharajedaghi, 2005b).

The well-documented argument that American schools reformulate old strategies and approaches to solve new problems provides insight to the idea that perhaps the culture is acting to maintain the status quo – the industrial model

of schooling (Ackoff, 1999; Spady, 2001; Tyack, 1990). Education is not alone: "people in organizations that use memory as a substitute for thinking often do what has always been done without reflecting" (Pfeffer & Sutton, 2000, p. 69). The *default culture* is simply a set of deeply buried, implicit assumptions about how things operate and how work gets organized and done. Default culture is difficult to expose, challenge, and ultimately change. The body of research presented earlier and evidence of continued failed attempts to solve problems in organizations of all types underscores the need for a different approach to organizational problem solving and planning (Gharajedaghi, 2005b; Sarason, 1996).

Problem Formulation

> *Perhaps the most damaging problem-related misconception promulgated by the educational process is that problems are objects of direct experience. Problems are not experienced: they are abstractions extracted from experience by analysis. They are as related to what is experienced as atoms are related to tables. Tables are experienced, not atoms. What we experience are dynamic situations that consist of complex systems of problems, not individual or isolated problems.*
>
> (Ackoff, 1999, p. 178)

Systems theorists and designers argue that an essential but often minimized or ignored part of the answer lies in effective problem formulation (Banathy, 1991; Caine & Caine, 1997; Ackoff, 1999; Ulrich, 2002). As Gharajedaghi stated, "We often fail not because we fail to solve the problem we face, but because we fail to face the right problem. We have been taught how to solve problems, but never how to define one" (Gharajedaghi, 1999, p. 114). The culture often makes default decisions for organizations when it comes to identifying and attacking problems. Problem solving often means taking what worked in the past and re-introducing or re-packaging it as a new solution (Pfeffer & Sutton, 2000). In a scan of leading strategic planning literature, including Minztberg's research findings into the effectiveness of strategic planning, problem formulation rarely receives more than cursory mention.

Strategic Planning and Problem Identification

Typical approaches to planning and reform rely on what has come to be commonly termed strategic planning. Perhaps the most prominent model was that of Cook's Cambridge Model. So prominent was the model that the American Association of School Administrators endorsed the approach for school change and continues to do so today (American Association of School Administrators, 2006).

Strategic planning involves a process that creates a well-defined list of actions and responsibilities to be carried out by schools or districts. Strategic planning's traditional structure includes: vision, mission, values, goals, strategies

and action plans (The Cambridge Group, 2006; Kaufman & Herman, 1991; Mauriel, 1989; Goodstein, Nolan, & Pfeiffer, 1993). The appeal of strategic planning is the linearity and clear and simple-to-follow processes (Leddick, 2004).

Strategic planning generally assumes that problems can be identified and solved one at a time by action teams assigned by senior leadership. The structure of the strategic planning processes include actions such as: targeting the problem, narrowing the focus, prioritizing solutions, prioritizing needs, identifing the issues to build a list of ideas, and identifying the solution (Colorado State Community College and Occupational Education System, 1995; Mauriel, 1989; Myrna Associates, 2006; Kaufman & Herman, 1991).

At its core, traditional strategic planning and most, if not all, of its derivatives, flow from biological assumptions about systems. Most strategic planning proponents assume an analytical stance to both problem formulation and planning. Analytic thinking implicitly assumes that the whole is the sum of the parts and, as such, improving parts separately or in small groups will improve the function of the whole (Ackoff, 1999). Mintzberg, one of the leading critics of strategic planning, argued that strategic planning cannot effectively define problems due to its reliance on analysis of problems rather than a synthesis of problems (Mintzberg, Ahlstrand, & Lampel, 1998). As a result, strategic planning seeks to analyze problems and their causes one at a time and in isolation from the other sets of problems. Once analyzed, a solution is applied to the

specifically identified solution by teams working largely in isolation from the other work teams.

Budzyna's model attempted to define a core problem and then target that problem with a clear solution (Colorado State Community College and Occupational Education System, 1995). Cook's model released work to subcommittees charged with improving a part of the system and periodically reporting results to leadership (Peterson, 1989). Kaufman and Herman's strategic planning approach prioritized needs (analogous to problems) and selected the ones to be solved (Kaufman & Herman, 1991). Duffy (2003) acknowledged that schools within a district are interconnected but believed clustering the different schools "will produce whole-district improvement." Curtis and Stollar (1996) conceded that organizational goals are "somewhat inter-related" but suggested that working on one goal and, consequently, dealing with one problem at a time would produce desired outcomes.

Problem formulation in strategic planning is largely overlooked or minimized. Typically, problems are couched as "needs." Consider the common definitions of the term problem from leading strategic planners: "A need selected for reduction or elimination" (Kaufman & Herman, 1991). "A need selected for reduction or closure" (Goodstein et al., 1993). In an analytical, or reductionist viewpoint, problems are things to be solved or needs to be reduced or eliminated. Such an approach is analytical in nature – seeking to tear apart in order to identify a problem and eliminate it. Social system theorists argue that

such an approach typically causes larger problems for the very system strategic planning is attempting to help (Ackoff, 1999).

Social Systems Theory and Problem Identification

Social system scientists and planners place significant importance on problem formulation. Critics of strategic planning argue that identification of a single or small set of problems treated as independent elements creates more problems than it solves. Such an approach fails to appreciate and consider that problems are manifestations of a complex web of inter-related actions and reactions within a system. Solving one problem at a time assumes a direct cause-effect relationship that social system scientists argue does not exist (Wheatley & Crinean, 2004; Banathy, 1991; Ulrich, 2002; Spady, 2001; Ackoff, 1999).

Such massive interdependency, systems theorists argue, demands rigorous attention to problem formulation. Forrester and Richmond called for comprehensive dynamic mapping of the current system to better understand the inter-related problems (Forrester, 1994; Richmond, 1991). Others argue that problems identified within current paradigms and organizational constraints are often counterproductive. Such problems and their solutions are already confined and defined by the existing system. Staying within the boundaries of the current system means known solutions can only be prioritized, adapted and improved. Solutions to inter-related problems beyond the current structures of the system are ignored or missed (Spady, 2001; Banathy, 1991; Ulrich, 2002).

Strategic planning, argue its critics, fails to acknowledge the importance of problem formulation. Minimal attention to effective problem formulation leads planners to conduct all of their work within the confines of the existing and known structures and processes of the system rather than truly stepping outside the existing set of constraints and problems in an attempt to address problems through design. Hock, in *Birth of the Chaordic Age* (1999) asked why, despite three decades of strategic planning, organizations increasingly failed to solve their problems and manage their affairs? Lee and Woll questioned strategic planning's failure to provide an in-depth, synthetic mess-formulation process (Lee & Woll 1996). Ulrich pointed to the lack of systematic reflection and debate regarding the validity of the identified problems and their underlying implications (Ulrich, 2002). Spady argued that strategic planning processes rarely escape the comfortable and the identification of the same set of problems (Spady, 2001).

Problem formulation in the socio-cultural system's view is a process designed to develop as complete a picture of the interacting system of problems facing the designers as possible. Problems are not defined by: (a) deviations from a norm; (b) a lack of resources, or: (c) solutions already in place. Such definitions shield designers from gaining a better understanding of the inter-related actions in and around the system causing the manifestation of the perceived problems (Ackoff, 1999; Gharajedaghi, 1999). Wheatley and Crinean argued that the desire to see problems as simple cause and effect lead to simple solutions. Simple solutions are often preconceived; designed with assumptions about what the problem is before any systemic, synthetic examination of the

system is conducted. Such preconceived solutions inhibit understanding and damage culture as members align themselves to pre-identified solutions to assumed problems (Wheatley & Crinean, 2004). Problem formulation, then, must help members come to grips with and understand the interrelationships at work that create the problems they experience. Linear mechanistic approaches like strategic planning, it is argued, cannot manage the dynamic complexity of social system problems. Because strategic planning makes the basic assumption that problems are independent and that the existing set of constraints and structures are fixed makes it a failed strategy in managing social system complexity (Ackoff, 1999; Caine & Caine, 1997).

Forrester and Richmond argued that understanding the current system and how it creates the current set of problems is critical. Such a process must debunk conventional opinions and wisdom as to what the problem is (Forrester, 1994; Richmond, 1991). Forrester further insisted that only through comprehensive modeling of complex systems can we overcome a lifetime of learning the wrong lessons from simple systems be overcome (Forrester, 1996).

Gharajedaghi's approach to defining the interacting set of problems includes the work of Forrester and other prominent systems thinkers. Called formulating the mess, the approach seeks to help stakeholders in the system identify the set of problems at play. Such problem definition differs from strategic planning in several significant ways:

1. Problems are products of success and not failure – problems aren't something to be eliminated from the current system.

2. Problems are the natural consequence of the existing order – the system in place was designed to solve previous problems and has created the current problems. Attempting to solve these new problems in the current system often leads to recycled solutions that do not work.
3. Therefore, problems tend to regenerate themselves in a system – returning again and again.
4. Problems are highly complex and inter-related – prioritizing problems to be reduced or eliminated with prescribed solutions fail to appreciate the complexity of systemic problems. (Gharajedaghi, 1999)

Problem formulation is an iterative process that involves three types of inquiry with time gaps between iterations. The three types of inquiry include: (1) systems analysis – developing a snapshot of the current system and the environment in which it functions; (2) obstruction analysis – identifying the areas of malfunction across the five identified dimensions of social systems outlined earlier and; (3) system dynamics – developing an understanding of the interactions of critical system variables and the nature of change within the system (Gharajedaghi, 1999).

Problem formulation creates a picture of an undesirable future state. Essentially the problem question is: "If we do nothing to change the current system and if the future is implicit in the current state what will our future look like?" Such an exercise isn't meant to be a prediction or to produce an accurate

forecast of the organization's future but rather to create a desire for change and renewal in stakeholders. As Gharajedaghi has noted, "more often than not, knowledge of the mess helps dissolve it" (Gharajedaghi, 1999, p. 127).

Problem Solving

> *Reactive planners focus on increasing their ability to undo changes that have already occurred. Preactive planners focus on increasing their ability to forecast changes that will occur. Idealized planners focus on increasing their ability to control or influence change or its effects.*
>
> (Ackoff, 1999, pp. 110-111)

Ackoff, in stark contrast to the strategic planning concept of problems as elements to be reduced or eradicated, viewed problems not as threats but as opportunities. Rather than attempting to eliminate what one does not want, socio-cultural systems theory seeks to design systems that one does want and that simultaneously dissolves existing problems (Ackoff, 1999). Strategic planning, on the other hand, focuses upon elimination of problems within the existing system.

Curtis and Stollar equated planning with a desirable goal and problem solving as alleviating an undesirable condition, believing that the goal of systems change was to be able to solve all problems effectively (Curtis & Stollar, 1996). Others refer to the desire of strategic planners to eliminate or reduce problems

through identifying and resolving issues (Goodstein et al., 1993; Bryson, 1988; Mauriel, 1989; Cushman, 1993). Peterson, in discussing Cook's model, advocated discussion, combination and ranking of goals and solutions and allowing subcommittees to decide if they could be implemented (Peterson, 1989).

Strategic planning's appeal lies in the speed at which plans can be developed and handed off to operations to implement. Myrna & Associates promises complete plans in two weeks (Myrna Associates, 2006). Duffy recommended a series of three-day retreats with internal stakeholders to build a plan (Duffy, 2003). Cook's model suggested a three-day planning retreat in which plans get developed and delegated (The Cambridge Group, 2006).

Strategic planners seek to solve or resolve problems by identifying, separating, ranking, and systematically tackling each problem in order. Many suggest prioritizing needs, identifying problems to eliminate, and then choosing which problems to solve first (Kaufman & Herman, 1991; Mauriel, 1989; Goodstein et al., 1993; Cushman, 1993; Bryson, 1988; Curtis & Stollar, 1996; The Cambridge Group, 2006; Myrna Associates, 2006). Stringfield, Ross and Smith's approach to school change is to separate the various elements of the school to improve them and assumes even before analysis of the elements that the problem is one of communication (Heady, Kilgore, & Hudson Institute, 1996).

Another common characteristic of most existing strategic planning models is the acceptance of the implicit assumption that the system – its structures, functions, and processes – is fixed. Therefore, these planning models endeavor to deal with issues assuming the current system as fixed and generally

unalterable. Cushman, in discussing school change and planning, considered how to improve schools "given the established structures" of the organization (Cushman, 1993). Others suggest utilizing their strategies to eliminate and reduce problems through ranking, compromise, voting, and consensus in order to either solve or resolve organizational problems. Despite strategic planning's strong emphasis on mission and vision, the orientation of planning is clearly focused on getting rid of things people and organizations don't want (Kaufman & Herman, 1991; Goodstein et al., 1993; Cushman, 1993; The Cambridge Group, 2006; Myrna Associates, 2006; Curtis & Stollar, 1996; Bryson, 1988). Ackoff named this approach *reactive planning* – the assumption that if one gets rid of what one does not want, one gets what one wants and that improvement and problem solving can be carried out independently in the various parts of the organization (Ackoff, 1999).

Socio-cultural planning, on the other hand, is based upon the assumption that: (a) organizational functions, structures and processes can be designed and redesigned and not simply improved or altered and; (b) most problems cannot be solved or resolved effectively in a system but must be dissolved through design (Ackoff & Rovin, 2003; Gharajedaghi, 2005b). As a result, system planners – perhaps more aptly termed designers – work to separate problem formulation from the process of designing solutions. Burgess Winter at Magma clearly stated the key difference between systems design and strategic planning as follows:

> The usual place to stand is in the existing set of constraints, issues, and opportunities that confront the organization. . . Using this approach,

> managers typically conduct a financial and organizational analysis, identify what opportunities and threats exist, what strengths and weaknesses the organization has, and then formulate a strategy that is intended to exploit the opportunities and minimize or eliminate the threats. . . The boat is patched but it is still the same boat and most likely will continue on the old course at about the same velocity or a little faster. .. Our recommended approach is to stand in a future that is not directly derived from present conditions and circumstances. . . Although the future is informed by the past, it is as 'past-free' as possible. (Pfeffer & Sutton, 2000, p. 98)

Socio-cultural designers, while devoting extensive time and study to the existing set of interacting problems, are careful not to imply that the past is prologue (Banathy, 1991). For the designer, problem formulation serves as a tool for both recognizing the need for change and as a check against any future design to ensure that it dissolves the major problems of the current system (Gharajedaghi, 2005b). Hock cautioned against binding thinking to existing structure and practice, believing it impedes the ability to envision a desired future state (Hock, 1999).

Planning, argue system designers, must be done outside existing constraints. Some argue that systems with the same structure exhibit the same range of behaviors. If the structures, functions and processes remain relatively unchanged then any additional activity designed to reform or change will have little effect. Planning inside such structure produces similar action plans and results (Forrester, 1994; Caine & Caine, 1997). Often strategic planning

initiatives support the implicit organizational assumption that systems can be improved without really changing them. Clinging to internal models inhibits planners from effectively producing change consistent with the external conditions the organization faces. Socio-cultural designers argue that the result is a focus on the wrong problems within the wrong systems (Hock, 1999; Spady, 2001; Banathy, 1991).

Once problems are identified, strategic planners begin to work to provide answers that either solve or resolve those problems in the system. Ackoff and Gharajedaghi provide a hierarchy of problem treatments that illustrate a key difference between traditional strategic planning approaches and the approach taken by designers:

- Absolve. Such an approach means ignoring problems in the hope they will solve themselves or simply go away. This is considered a lose/lose solution.
- Resolve. This approach means to employ strategies and behaviors that have worked in the past to solve the new problems. Compromise fits this definition well, where both sides agree to give up something to move forward. This, like absolve, is a lose/lose solution in which none of the parties gains what is truly desired.
- Solve. Solving a problem means bringing a solution to bear that is the best possible outcome given the circumstances and one that, hopefully, optimizes the organization. Solving problems is often conducted through command and control mechanisms where the people higher in the

organizational structure solve the problem for those who are lower in the structure. This is often a win/lose solution because the problem solution may be perceived to create winners and losers based upon the solution selected to solve the problem.

- Dissolve. Dissolving problems assumes that the system currently operating is creating a set of complex and interacting problems not solvable in the long term by the system that is producing the problems. As such, dissolving problems requires that planners redesign their system in such a way as to eliminate the conditions that create the set of problems and advance the organization. Such a solution is a win/win because it replaces what created the set of problems and constraints the stakeholders were experiencing with a jointly conceived and constructed new system designed to tackle the current contextual environment (Ackoff & Rovin, 2003; Gharajedaghi, 1999).

Designing a solution through the systems design approach begins with the assumption that the system to be redesigned has been destroyed overnight but the environment in which it operates remains unchanged (Gharajedaghi, 1999). The central idea in such an approach is engaging stakeholders in envisioning the system they would have if they could have what they wanted today (Ackoff & Rovin, 2003). Designing a solution in this way attempts to:

1. Produce an order of magnitude improvement in the system.
2. Create a shared understanding of a preferred future.
3. Generate ownership and commitment among key stakeholders.

4. Dissolve conflict and create win/win solutions.
5. Convert obstructions into opportunities. (Gharajedaghi, 1999)

Rather than begin with vision and mission, system designers engage stakeholders in an iterative design process around the question: "If you could have any system you wanted today, what would you have?" From this framework, designers engage stakeholders in an ongoing conversation that defines the organization's purpose, its critical functions, and the structures and processes required to effectively and efficiently produce both the functions of the organization but also create complementary relationships between the five system dimensions: wealth, beauty, truth, values, and power (Gharajedaghi, 1999). Such a process is a significant departure from more traditional strategic planning approaches.

Toward A Third Generation Systems Design Experiment

A dearth exists in the literature regarding how the problem formulation and design specification stages of systems design impacts and influences participants in the process, particularly in public school environments. A compelling question remains: can systems design methodology achieve its purpose to help stakeholders envision a new and exciting system capable of dissolving current problems and creating a desired future? Strategic planning tends to mire itself in the present set of problems and constraints and systems design seeks to escape current constraints to redesign systems to adapt and develop. There is a powerful difference in theory and thought between strategic

planning and that involved in systems design. Adaptation and development are important system considerations to be studied as people engaged in systems design work experience such an approach and its potential to create a better future.

Through a grant by the Wallace Foundation and the Iowa Department of Education, two Iowa school districts and their stakeholders had an opportunity to experience Third Generation Systems design methodology as defined and practiced by Gharajedaghi during 2005 and early parts of 2006. The researcher sought to explore stakeholder perceptions and thoughts regarding their experience.

Chapter 3

METHODOLOGY

Introduction

This chapter outlines the research orientation, methodology, and a discussion of the strengths and limitations of this study.

Prior to considering a research methodology Guba and Lincoln suggest that researchers first clearly identify the paradigm from which they operate. "Questions of method are secondary to questions of paradigm, which we define as the basic belief system or worldview that guides the investigator" (Guba & Lincoln, 1994, p. 105). This researcher's paradigm, outlined in chapters one and two, is essentially a socio-cultural view of the world. If forced to categorize, then post-modern would be an appropriate term. The researcher believes that everything is connected to everything else and thus understanding cannot be acquired through linear, cause-and-effect thinking and inquiry alone. The researcher's paradigm posits that understanding a system requires understanding the interactions of the parts in the context of the environment within which the system operates. As Gharajedaghi stated, "Neither problems nor solutions can be entertained free of context" (Gharajedaghi, 1999, p. 116). Qualitative research fits well with the researcher's paradigms, since qualitative research appreciates the researcher as an active agent in any research pursued and that analysis of individual parts in an attempt to understand the functioning of the whole is impossible (Yin, 2003, p. 13).

A case study approach was selected for this research because it focused on a very specific organizational activity wherein two schools conducted a redesign process using a nonlinear methodology based on the work of Gharajedaghi. Bogdan and Biklen identify such a case study as microethnography while Yin identifies it as an exploratory case study. In either case, both authors argue that a case study is an apt and appropriate methodological approach when seeking to understand a contemporary, real-life event. Another consideration in selecting a case study is that the study must be a "bounded system" – that is, a system that can be defined in time and space (Bogdan & Biklen, 2003, p. 60; Yin, 2003, p. 1). The Planning Team studied in this situation can be identified as a bounded system and, therefore, fits the criteria recommended for a case study approach.

A case study is further warranted, according to Yin, when the primary impetus of the study is to answer how and why in relation to a complex set of social interactions where the researcher has little control over the events (Yin, 2003, pp. 1-6). While an active agent as a participant, facilitator and coach of the process, the researcher had little control over the participants' experiences within Planning Team meetings and none as the members carried out work in their communities. Participant experiences, while influenced by and connected to the researcher, remained their own construction as they returned to the context of their profession, school, and community.

Through an exploratory case study approach, the researcher sought to answer the macro question: "Does the Idealized Design process demonstrate an

effective and workable process for fundamentally changing the conversation about schooling among design participants?" Specifically, the researcher sought answers and insights to the following:

- Do participants in the process view the issue of school reform differently as a result of their experience with Idealized Design methodology? If so, in what ways?
- Can a community change its conversation about school improvement and the "Next Generation" of its schools through this process?
- Does the process produce a design that creates an exciting future for the community it serves?
- What recommendations for improvement can be gleaned from a study of this methodology as it pertains to public school reform and redesign?

The results of this study inform educators interested in alternatives to traditional planning and improvement designs to determine if Idealized Design can provide a viable option in their attempts to re-design schools to meet the current and future demands of society.

Research Design

This case study examined two small, Iowa school districts undertaking a re-design effort of their public school systems through an Iowa Department of Education and Wallace Foundation Grant. Both school districts border the second fastest growth area in the state of Iowa, commonly referred to as the

Cedar Rapids/Iowa City Technology Corridor. While both districts exist on the periphery of this corridor they are quite distinct in their demographic makeup and histories. One community is resident to a small, private liberal-arts college filled with buildings on the state's historical registry. District students draw from a relatively small geographical area of 76 square miles and are mostly residents of one community. Education is highly valued and its residents are among the most educated in the area. The community is experiencing strong growth as people move to the community and commute the fifteen to twenty miles to the Corridor to work. The community is in the midst of constructing a new high school after passing a bond issue in 2005.

The second school district is an aggregate of nine small communities and encompasses 162 square miles. This district contains a unique ethnic community from old-world Germany. The communities are small and rural with agriculture and tourism the primary sources of income. Financially, these nine communities would be considered much more blue-collar than its counterpart in the study although it is experiencing new and fairly rapid growth in enrollment and new housing as workers from the Corridor seek small town living.

The study examined the perceptions of the Planning Team. Over the course of 12 months this group spent considerable time together learning, discussing, processing, and producing information, artifacts, and designs through a process guided by Gharajedaghi, Leddick and Pickering. As the researcher engaged in this grant project, interest in the implications of the process for changing a community's conversation about schooling and in proposing a new

design for school systems grew. Planning Team members appeared highly engaged and energized at each meeting as evidenced by their strong attendance and the energy they exuded throughout long evening meetings after working all day. The researcher had not personally experienced this level of excitement in past reform and restructuring activities – and began to ask why this seemed different. As a student of systems theory and the work of Ackoff and Gharajedaghi, words uttered by Gharajedaghi in past conversations kept resonating in the researcher's head: the value of the design process often is enough in itself to forever change the conversations and to move the system forward (Gharajedaghi & Leddick, 2004). The researcher concluded that it would be important to discover how and why this process generated excitement in participants and if, in fact, it did fundamentally change the way the Planning Team members viewed change and school reform.

The study began in April, 2005 when Leddick met with the Planning Team and provided a brief introduction to the grant and the design proposal. The Team then shared a learning experience in June of 2005 when they, the researcher, and invited guests spent two days with Gharajedaghi to learn about systems theory, concepts, and assumptions and began to learn the methodology for transforming organizations through systems design. In the fall of 2005 the Planning Team met for three, four-hour sessions at the Grant Wood Area Education Agency in meetings facilitated by Leddick and Pickering. These sessions involved an iterative process known as mess formulation in which the Planning Team endeavored to gain a deeper understanding of the problems and

issues that were embedded in their educational systems. During the months of November and December, 2005 each school district's Planning Team gathered design specifications from the community for what the Next Generation of their school system might look like. In early January, 2006, the Planning Team met with Gharajedaghi, Leddick and Pickering to begin the first iteration of a design to meet the specifications identified by each community which would remove the constraints and issues identified during the mess formulation phase. Finally, the Planning Team produced, through three iterations, a set of designs to take back to their communities in April, 2006. The researcher gathered data from June, 2005 through the first iteration of the design, culminating in a series of interviews and surveys in the weeks immediately following the January design session. The process was purposeful in that the researcher wanted to capture participant perceptions after an initial foray into a design and before the members had to grapple with determining a course of action for implementing their design over time.

Data collection included: direct observation, review and analysis of documents including meeting notes, participant artifacts produced during the process, participant interviews, and a survey. A discussion of each collection method is described below.

Data Collection

The following section describes the data collection methods utilized in the study.

Direct Observation

The researcher was one of five individuals who wrote the initial grant proposal for the project and organized the resources to complete the project. Additionally, the researcher served as a facilitator and apprentice consultant to the project, attended every joint meeting of the Planning Team, three of the community-based meetings led by Planning Team members in their own communities, and facilitated a specifications meeting with area business members. The researcher took field notes of each meeting and conducted many informal discussions with participants as a way to validate or refute the researcher's perceptions. For example, at a meeting of high school faculty in which the faculty appeared to be highly engaged and energized by an element of the design process, the researcher believed that there was something quite different about this meeting. To ascertain whether Planning Team members who facilitated the meeting felt that way as well, they were asked two simple questions: "Is this a typical faculty meeting? Why or why not?" The data gleaned from the responses provided confirming evidence about the process.

Review and Analysis of Documents

The researcher's primary responsibility as apprentice consultant to the project was to gather, organize, and produce the documents that would provide a clear and accurate historical picture of the process and findings. As a key component of the design, both the specific work and material discussed as part of the facilitated process and the thoughts, ideas and results of the work of the teams were carefully documented and verified with Planning Team members at each subsequent meeting. All documents, notes, and illustrations had to pass the Planning Team's scrutiny, final editing, and approval. The review and analysis consisted of examining the documents for patterns and trends in the discussion and the findings as well as for indications of team member energy, enthusiasm, and perceived attitudes throughout the proceedings.

Participant Interviews

The researcher employed an internal sampling process for conducting interviews. According to Bogdan and Biklen, internal sampling is "decisions you make once you have a general idea of what you are studying, with whom to talk, what time of day to observe, and the number and types of documents to review" (Bogdan & Biklen, 2003, p. 61).

Participants on the Planning Team ranged in number from 22 to 29 throughout the experience. Approximately two-thirds represented District A and one-third represented District B. Planning Team members were selected by each

community utilizing their own internal processes and procedures. The Planning Team represented the following stakeholder groups:

- Superintendents
- School Administrators
- School Board Members
- Teachers
- Parents
- Business
- Healthcare

The researcher was interested in exploring the thoughts and reactions of the various stakeholder groups. The author interviewed both superintendents, a building administrator and teacher from each district, and a board member with business interests from each community. The author desired to gather data from as many perspectives as possible in order to draw out consistent themes, feelings, responses and conclusions from those engaged in the study. To accomplish this activity, Planning Team members not directly interviewed were asked to complete a written survey. The author selected interviewees based upon a random selection process for the roles of principal, teacher, and school board member in order to ensure a sample as representative and unbiased as possible. All interviews were tape recorded and transcribed verbatim for accuracy.

The researcher believed it important to interview both superintendents as the educational leaders of their respective communities. The other interviewees

were randomly selected by their position (principal, teacher, board member, etc.). All interviewees were provided a Drake University Institutional Review Board-approved informed consent form. The interviewer clarified the purpose of the study and the rights of the interviewee prior to securing signed permission and conducting the formal interview with participants.

Pseudonyms were used for each participant. Pseudonyms beginning with the letter "A" indicate members of School District A and pseudonyms beginning with the letter "B" indicate members of School District B. The distribution of interviewees is depicted in Table 3.1.

District	Title	Experience in District
A	*Superindendent "Adam"*	*4 years*
A	*Teacher "Alan"*	*5 years*
A	*Board Member "Anthony"*	*20 years*
A	*Principal "Avery"*	*4 years*
B	*Superintendent "Barb"*	*2 years*
B	*Teacher "Blake"*	*6 years*
B	*Board Member "Bob"*	*11 years*
B	*Principal "Betty"*	*2 years*

Table 3.1. Interviewees by District, Title, and In-District Experience in Current Position

Adam. The superintendent from District A was in his fourth year as school superintendent. Adam attended the college in District A's town and began his teaching career in District A, moving from teacher to principal to his present position as superintendent of schools. The interview with Adam was conducted in his office, which was contained in the high school building. It was a pleasant January morning with the sun shining through windows lining the upper portion of Adam's office. A new high school was under construction and clearly visible at the entrance to the current high school. Pre-interview talk centered around the

work, progress, and excitement Adam was experiencing as a result of the building project.

The interview was interrupted once with a phone call Adam had been expecting and indicated prior to beginning the interview that he would be required to take. Adam was warm, friendly and exuded a passion for the topic as expressed in his tone of voice and animated features as he spoke. His final comment to close the interview was, "I'm fired up!" Adam was direct and clear in his descriptions of events, findings, and the process in which he and his district were engaged.

Alan. A high school teacher from District A, Alan was completing his fifth year in District A as a science instructor and coach. Prior to District A, Alan served two years in another Iowa district teaching a broad range of students from at-risk/alternative students to Advanced Placement courses. Alan was nearing the completion of an administrative degree and anticipated pursuing administrative positions.

Alan was interviewed in March, immediately preceding an evening Planning Team meeting to conduct a third iteration of their design. Alan was the last participant interviewed. The interview was conducted in District A's high school media center. It was a rainy and stormy evening with intermittent small hail showers occurring outside. Other Planning Team members were arriving during the interview and carrying on conversations on the other end of the room. This did not appear to be a distraction for Alan. Alan had come from a personal workout session and was dressed comfortably in shorts and a tee shirt.

Alan was eager to sit down and discuss the project and spent considerable time providing context to his comments, calling upon a myriad of recent experiences in planning and design that helped to prepare him for the current round of work. Alan was serious and direct in his comments and was interested in ensuring a complete response to each question.

Anthony. A school board member from District A, Anthony was in his twentieth year on the board and completing his fourth year as board president after deciding several years ago to increase his involvement in school governance. Anthony worked as an administrator in a service sector industry.

The interview was conducted at a local college's conference room where Anthony's work was based. The room had a large wooden conference table and comfortable, large leather desk chairs. It was an overcast, gloomy March afternoon, making the conference room somewhat dark.

Anthony was clear and articulate and talked at a fairly rapid pace. He would often diverge from the question being asked, acknowledging that he was doing so with comments like, "I'm on a soapbox right now." It was these detours that helped to demonstrate to the interviewer Anthony's passion for his district and the work they had to do. Anthony was always able to return to topic and provided insightful and in depth and pertinent comments. There were no interruptions during the interview.

Avery. The high school principal of District A, Avery, had been an educator for 33 years. Avery had served as District A's high school principal four years, having previously been an associate principal at a large high school. The bulk of

his career had been spent in special education both in local school districts and the local area education agency.

The interview with Avery took place in his office in the high school on a bright February day. The sun was shining through his southern-facing windows, creating a warm and inviting office. Avery's office was cluttered with the papers and work he was dealing with at that time. Avery sat comfortably in his desk chair. He was very professional and formal during the interview and his comments were direct, clear and stated factually. Avery appeared to the interviewer to be cautious and careful in his comments to ensure that his ideas and thoughts were being clearly understood. Avery demonstrated a great concern for ensuring that any work conducted could and would result in measurable and visible action. There were no interruptions during the interview.

Barb. The superintendent from District B was in her second year in that position. Barb had worked for eight years as associate superintendent in the largest school district in the area and as an executive director of the local AEA for a number of years prior to that.

The interview took place in the AEA's Chief Administrator's conference room on a January day. There were no windows in the room and the room was filled with books and magazines comprising a portion of the Chief Administrator's professional library. Barb was relaxed, gracious, and focused during the interview, making clear comments with examples. The interview took on a conversational tone rather quickly and was comfortable and natural. There were no interruptions during the interview.

Blake. A middle school teacher from District B, Blake was completing his sixth year in the district. Blake's entire career had been spent in District B, beginning in special education. He was the lead teacher with administrative duties during the 2005-2006 school year.

Blake's interview took place in February in a cramped interior room filled with technology in the back area of the middle school's administrative office. Blake and the interviewer sat at an old folding table set against the wall and the interview was interrupted once when a secretary came in to retrieve an item.

Blake was professional in his appearance and discourse, often referring to his principal as "Mr." Blake was clear and direct in his responses and settled into a conversational tone after several minutes. He was eager to share his thoughts and feelings and his optimism for the work increased as the interview progressed.

Bob. A school board member from District B, Bob was completing his eleventh year on the school board. Bob was the current board president and planned to run for board membership again in the Fall of 2006. Bob owned and operated his own business in the construction industry.

The interview took place in Bob's new home in the country. It was a bright and sunny day and the sun shone brightly into the windows encompassing one wall of the home. The home was spacious and warm and Bob was working on a large bid. The interview was interrupted twice by phone calls, with Bob apologizing but having to take them as they were business calls. The interview was conducted while sitting as his kitchen table.

After some small talk, the interview proceeded. Bob was clear, articulate and complete in his answers. He appeared to thoroughly enjoy the opportunity to share his thoughts and insights and the interview was conversational and comfortable from the start. Bob's interest and excitement were evident not only in his tone of voice but also in the way in which his eyes shone as he talked about the future of his community's school and the leadership team he had helped to assemble. Both Bob and the researcher laughed frequently during the interview.

Betty. The elementary school principal of District B, Betty had served two years as building principal after several years as an elementary teacher and reading facilitator in both of the largest districts in the area. This was Betty's first administrative position.

The interview took place in District B's high school media center immediately preceding District B's Planning Team meeting to go through the second iteration of the design. It was early evening and both the interviewer and Betty arrived a bit late for the interview due to the weather. It was a snowy February evening. The interview proceeded as other team members arrived, but that did not appear to distract or bother Betty.

Betty was focused and complete in her answers. Her responses to many of the questions were anchored in her current experiences as she cited examples of how she was using what she was learning in the process to drive improvement in her school. Betty's passion for keeping children at the core of any work or change in schooling was clearly evident as she referred often to her concern for reaching out to each and every student.

Participant Surveys

Twenty-one planning team members not directly interviewed were sent a short questionnaire based upon the same set of questions asked during the structured interviews. Each person was sent a packet of materials including a letter describing the project, the same consent form as was utilized with interviewees, the set of questions and a pre-paid, return-addressed envelope. The survey return rate was thirty-three percent, with seven of the twenty-one surveys returned. A brief profile of each of the seven survey participants is shown in Table 3.2.

District	Title
A	Principal "Alex"
A	Board Member "Amy"
A	Teacher "Alice"
A	Parent "Andrea"
B	Teacher "Boyd"
B	Principal "Bill"
B	Social Worker "Beth"

Table 3.2. Survey Respondents by District and Title

To ensure that all members had an opportunity to have their voice and perspective heard, analyzed, evaluated, and included in the study, the researcher provided a written survey using the same questions posed during the interviews to those team members not selected for individual interview. In this manner, each member had the opportunity to share their thoughts and insights so that the researcher could add the data analysis and coding from the surveys

to the interviews as further validation of the concepts, themes, and ideas that emerged through the interviews.

Data Analysis and Rationale

From these groups, the researcher analyzed, dissected, and coded the themes, ideas, and concepts that emerged from the interviews and surveys provided to all Planning Team members. The goal was to develop a more complete understanding of the experiences of the group as a whole and if, how, and why their perceptions and notions of educational design changed and evolved as a result of the experience. Bogdan and Biklen define the coding process as: (1) searching the data for patterns, regularities, and topics and; (2) categorizing and labeling the topics and trends through the use of code words or phrases. Coding categories fall into several different coding families. Of those identified by Bogdan and Biklen, coding for this research study were: situation, subject perspective, and event. Situation refers to how subjects define themselves in relation to the project or work – what they hope will be accomplished, how they define their role, what is important to them, and so on. Subject perspective helps the researcher code ways of thinking shared by some or all of the subjects and may focus upon a particular aspect of the work or setting. Event coding is useful in case study research because it helps the researcher code themes and patterns that emerge as subjects discuss and identify key events in the project and how it may have affected them (Bogdan & Biklen, 2003, pp. 161-166).

Each participant was interviewed between the first design iteration meeting in January, 2006 and prior to the third and final design iteration meeting in March, 2006. This was a purposeful design since the researcher sought to gather information from the interviewees at the same time in the process. The researcher selected this time frame because it represented the completion of the mess formulation and design specification phase of the project while giving the team members an initial glimpse into the design that would begin to remove constraints and create the school the community had told them they wanted. This time period was important because the researcher wanted to ensure that the problem formulation phase was not too distant historically for the subjects to accurately assess their feelings and reactions, but also to provide them an opportunity to experience at least one iteration of the design prior to recording observations. This was an important element of the research design since information and documentation collected at one time is often different from what is collected at a different time. Conducting the interview in a finite and compressed time-frame helped to ensure that the information collected came from a similar point in time and, with respect to the Planning Team, at a similar point in their understanding and development of the project work (Bogdan & Biklen, 2003, p. 61).

The researcher designed the following set of open-ended questions with which to guide the interview process and to ensure that each interview was conducted with the same set of core questions. The goal of these interviews was

to discover what the subjects thought about the experiences and, from their perspective, how the experience shaped their current thinking about education.

1. Prior to this experience, what was your experience with planning and design? How was this experience similar and different?
2. Have your conversations with other members of this group, your friends, and/or the community about school and school reform changed since beginning this process? Why and how?
3. What were your fears and hopes as you took part in this work?
4. What fears and hopes remains as the rest of this process unfolds?
5. Do you believe, and have you seen evidence in yourself and others, that this process holds the potential to help create meaningful change for your community's school system? Why or why not?

Strengths

The strengths of this case study design include the nature of involvement of the researcher in the process, multiple sources of data, and allowance for the study of two separate communities undertaking a design process simultaneously.

Researcher Involvement

The researcher was involved in the project from day one. In fact, the involvement of the researcher predates all of the Planning Team members' involvement with the exception of the two superintendents who helped to write

the grant proposal for the project. This was advantageous in a qualitative case study because it reduced the distraction caused when the researcher was inserted into an already developing process (Bogdan & Biklen, 2003, p. 84). As such, participants were not affected by the presence of the researcher, because that researcher was considered to be a facilitator and coach more than an observer and critical researcher. Since the researcher was a part of every meeting and process of the Planning Team, it is safe to presume that the environment of the study was not altered by his presence. While the Planning Team knew that research was being conducted as part of the process, it was never made a focal point. Some critics argue that if emphasis on the fact that research is being conducted is not made, it is deceptive. Bogdan and Biklen disagree, indicating that while being honest and clear about intent is important, making as small an intrusion into the research environment is often most important in good qualitative research (Bogdan & Biklen, 2003, p. 77).

The researcher's presence from the outset, then, strengthened the study in that the Planning Team members accepted and acknowledged the researcher's role as part of the work and, more importantly, viewed the researcher more as a supportive coach and facilitator than empirical researcher. The researcher kept to the designed questions to reduce the chance of unintentionally asking leading questions of the interviewees.

Triangulation

The fact that the case study approach relies on four types of data collection allowed the researcher to develop adequate triangulation and data verification procedures and processes to ensure that the study was both rigorous and fair in nature (Yin, 2003, p. 2). The documents, observations, interviews and survey all helped inform the researcher's findings and validate the themes, concepts, and ideas that emerged. Constant and repeated verification of the researcher's observations from Planning Team members provided an accurate picture of team member perceptions, reactions, and recollections of the processes, meetings, and proceedings. Creswell strongly recommends, "analyzing the multiple sources of data to determine evidence for each step or phase in the evolution of the case" (Creswell, 1998, p. 153).

Another strength included the timing of the subject interviews and surveys. These activities were conducted within a four week period between Planning Team meetings to ensure that each subject was at a similar point in the project as the others. Since the researcher's focus was on how participants perceived the process and how it was changing conversations, it was important to capture participants' thinking at this stage, prior to experiencing the complexity of attempting to approximate the design in their communities.

Limitations

While the researcher was embedded in the study as a facilitator and consultant from the beginning, thus reducing the interference caused when a

researcher enters the environment, it also created some concerns regarding the study. The fact that the researcher was facilitator/consultant in the process and held strong beliefs attached to the concept of Third Generation Systems design, he had to take careful and calculated steps to ensure that the analysis of data was conducted honestly and fairly. While no researcher can completely remove the lens with which they examine qualitative data, they must ensure that their "writing be consistent with the data they collect" and that the findings "are plausible given the data" (Bogdan & Biklen, 2003, p. 24). The researcher, to minimize this limitation, conducted extensive member checking, stuck close to the scripted interview questions, and triangulated the data to ensure that the participants' viewpoints, and not the researchers, dominated the findings.

Timing of Interviews and Surveys

Another limitation in the study revolved around the timing of the subject interviews. Taken between the first and second meetings to create a new school system design, subject responses came before a final design was created and, more importantly, before any design began to be implemented. While careful consideration went into the timing of the interviews for the reasons stated previously, such timing doesn't take into account the full experience of the participants from beginning of the process to the end. Therefore, the study was limited to defining how this group of participants viewed the problem formulation stage and the first iteration of the design phase. The study did not follow the case through to its final design, nor did it follow how each community proceeded to

approximate the design or elements of the design in their schools. This study only suggested further research into the actual implementation of the design and did not attempt to indicate or suggest that such a design process can or will yield a successful implementation of its design.

Generalizability

Often qualitative researchers are not concerned with the notion of generalizability as defined by more traditional research. Fraenkel and Wallen define ecological generalizability as, "the degree to which results of a study can be extended to other settings or conditions" (Fraenkel & Wallen, 2003, p. 111). Because generalizability demands that "conditions must be the same in all important respects in any new situation in which researchers wish to assert that their findings apply," this issue in the context of a social system didn't apply (Fraenkel & Wallen, 2003, p. 111). The question regarding generalizability then became, who decides what the important aspects are?

Gharajedaghi argued that when dealing with open systems like a school system they can "be understood only in the *context* of their environment" and "neither problems nor solutions can be entertained free of *context" (*Italics added by author for emphasis) (Gharajedaghi, 1999, pp. 32,ß128). Bogdan and Biklen argued that the qualitative researcher is "more interested in deriving universal statements of general social processes than statements of commonality" (Bogdan & Biklen, 2003, p. 32). Therefore, this study cannot generalize to any

other particular setting, place or time and can only suggest how this methodological approach to planning and design worked in this context.

Larger Community

A final limitation was that the study did not directly seek input from members of the community outside of the Planning Team. While the researcher examined field notes and made observations regarding larger community member reaction, the study was limited to those individuals who served on the Planning Team and were involved in the process, to larger and smaller extents, from the beginning. As such, this study provided insight into how active participants in the process viewed such a process but not how the larger community accepted or understood the process and its results.

CHAPTER 4

ANALYSIS OF THE DATA

Introduction

This study consisted of one overarching research question: Does the Idealized Design process demonstrate an effective and workable process for fundamentally changing the conversation about schooling among design participants? The researcher conducted eight interviews, received seven surveys returned from participants not selected for interviews, attended and observed every meeting of the joint planning team, and reviewed and examined the documents produced by and for the group. Through the data analysis, the following themes emerged: (1) expanded thinking about systems; (2) engagement and excitement for the work, and; (3) sustaining the effort.

Prior Planning Experience

Each respondent was asked about their prior experiences with planning and design. Seven identified their prior experience as traditional strategic planning. Barb, the superintendent of District B with many years of formal leadership experience, stated,

> Most of my experiences with planning and design would have followed what you call the strategic planning sort of model. I don't mean to be overly critical of the strategic planning process, but sometimes it felt like those processes. . . we did them as organizations for the sake of doing them.

District A's principal, Avery, summed up his feeling about prior planning processes by saying, "Most of my experiences before getting involved (in this project) is what I'd call short-term thinking about long-term problems." Bob, the president of District B's school board described his prior planning experiences similarly, "We never looked at school reform in a holistic way."

Six of the fifteen respondents, mostly those not in formal administrative roles, identified involvement in small scale improvement efforts. "My (prior) experiences involved smaller project/issues," stated Beth, an educator in District B. Another District B teacher echoed a similar experience, "I'd participated on a building-level planning committee, which worked on very specific areas of concern." Andrea, a parent in District A, had a similar response, "Most of my experiences were standard planning and design experiences." Two of the planning team members had no previous experience with planning and design efforts.

Expanded Thinking About Systems

This theme focused on the breadth and depth of the work undertaken by the planning teams. Team member comments focused on both the scope of the thinking and noted differences between the Idealized Design approach and their prior experiences with planning.

Removing Design Constraints

Several noted that the process enabled them to expand their thinking and helped them to remove many of the traps and constraints that typically confronted them. Anthony, the board president from District A, quickly identified the difference:

> It's scope. The scope here is unlimited and in the past it was a choice between this reading program at the elementary level or that reading program or this one. There were three choices, three different vendors. Our teachers and students feel better about this one, our administrator prefers this one. This is so just totally different in scope with basically no limitations (Before) we thought with the limitations of what we could do within the confines of this building or within our teachers or within this school day or within this budget. Everything was framed around that for a long time.

Bob identified similar experiences in his board role:

> We looked at bits and pieces, you know, there were always bits and pieces that came to the table. Let's look at this little program change and see what we can do. . . let's look at reading, let's look at math, let's look at science. It's not ever been approached in this manner, let's look at everything and how does everything fit together. It's never been done from the board all the way down to the student looking at it. This is a more complete system.

Andrea expressed optimism for an approach that seeks to escape current constraints:

> I appreciate the method of setting aside one's notions about taking what works the best and stretching it over everything, which often doesn't work. This process does not take the best successes for one group and stamp them onto a different group because that does not work.

Such sentiment was echoed by building administrators as well. Bill, a principal in District B, identified the larger scope and freedom to create, "Instead of attempting to solve issues through planning we are attempting to create an entirely new system that meets the emerging needs of our community." Alex, a District A principal, felt the process enabled him to go deeper in his thinking about education, "This process has made me take a deeper look at what we do and, more importantly, why we do it. We look at what we do much more globally now."

Synthetic Thinking

Boyd, a District B teacher, honed in on the basic design question that the process utilized to expand and open thinking,

> I love that question – if you could have any school you wanted what would you have? That is a very clear and organizing question and I think it opened up tremendous conversations. What I liked was the sense that we could do anything we wanted. There were no boundaries, it seemed.

Alan, a District A teacher, focused on how the process helped him escape his own issues, "People have a tendency to get caught up in their own issues. We're so concerned with the day-to-day and here-and-now that we look at ourselves as almost in a bubble at times." Barb summed up the impact and importance of the process in this way:

> This process appears to me to hold that promise of true innovation and change and I'd be concerned about what product we'd end up with down the road if we didn't have that kind of framework to test our ideas against (This process) really pushes you to synthesize as opposed to taking apart the pieces and seeing how you're going to move along.

The impact of the process appeared to help planning team members move to deeper and more important questions about schooling. Bob identified the process' ability to help members really challenge the status quo:

> I don't think any board really ever has been asked to diagnose their school as this process has asked us to. . . to really look and really ask some tough questions about how we do things and why do we do things and what, you know, never really the consequences, the total consequences of what we do or what we're doing.

Anthony echoed similar thoughts as the planning team began challenging many assumptions and long-held beliefs,

> We didn't ask the questions two years ago. This provided a framework to ask ourselves, what we are doing right? What we aren't doing right? It

gives us the permission to challenge a lot of things whether the length of the day or the periods in the day or whatever, how we educate our people.

Bob added, "We had to look not at who is going to program the next computer, but who is going to design something that replaces the current computer?" As the process unfolded, the ability and freedom to openly challenge system assumptions grew. As Bob stated in his reaction to the meetings and the process, "People really started to get a grasp of what the question meant – what does change in education mean to you? They began to look deeply at it." Avery contrasted his experiences on the planning team with his prior experiences noting, "we didn't plan in any kind of systemic way before, it was more of what was the latest fad or thing that could be added without taking a look at the big picture."

Non-Linear Process

Adam, District A's superintendent, at first expected a rather immediate and specific plan and, despite some early frustration, began to believe that the Idealized Design process was a better route:

> Actually going through this where it made you not, it didn't give you the path right off the bat. I thought we'd be a little bit more following a specific plan but I'm at the point now saying how valuable it was to not just say, 'here's a canned approach, let's all put it in, just fill in the dots and you can go do it at your school' because I don't think that would have been near the impact that this potentially can have by the method we are using.

Betty, a District B principal, shared Adam's initial frustrations and realizations,

> I want something concrete and I think that was different for a lot of us because we wanted that concreteness of, 'this is what we are going to do, this is where we are going with this' and that makes it easy to fall back into the ways we are used to doing things.

Barb expressed surprise in how difficult it was for the team to escape their current paradigms and expressed how the Idealized Design methodology may have helped,

> Absent a process or methodology to fall back on, I'm not sure we wouldn't continue to get what we always had. I think that again might be a contrast with traditional planning models. This process appears to me to hold that promise of true innovation and change and I'd be concerned about what product we'd end up with down the road if we didn't have that kind of framework to test our ideas against.

Betty also identified the barrier of preconceived notions, "This was a totally different way of completely throwing everything out the door and starting over with what it would look like if we could have anything we wanted? That was really difficult because we have our preconceived notions."

Barb was struck by the processes on-going implications, "This is not tinkering. This is trying to totally rethink how to accomplish the primary goals that you think you are about." Alice appreciated the fact that no preconceived solution existed, "This was different from strategic planning that has the ends already in mind – this process caused us to reflect upon both the means and the ends."

Barb believed that without such an approach, powerful assumptions may have remained hidden and active, "I have great hope about the premise of this whole system to challenge those basic assumptions that maybe would otherwise never make it to the table." Alice, a District A teacher, found the process enabled deeper thinking, "Our discussions have gone beyond just 'methods' to what a school is, who we are, and who we want our students to be."

Summary

After examining and analyzing the data based on the comments made by respondents, several patterns emerged. First, none of the participants had ever been engaged in a process that allowed them the freedom and responsibility to ask the question, "What would we have if we could have what we wanted?" The ramifications of such a question became clear as respondents commented about the deep assumptions that were exposed. Adam indicated that his team was now able to discuss formerly "taboo" subjects with greater ease and openness. Prior planning efforts, in participants' estimation, had constrained their thinking, relegating them to attempt to solve individual problems superficially. Second, such a process pushed them to think holistically and synthetically about their issues and problems. While at times more difficult and frustrating, such a process enabled them to escape the cause and effect thinking characterized by dealing with issues one at a time. Third, the non-linear approach did not provide a predetermined solution template. This approach caused early frustration among

several of the respondents however, as the process unfolded, they appreciated the freedom such a process provided them.

Engagement and Excitement for the Work

This theme involved planning team members' (a) feelings of excitement around the work and the conversations they were having with each other and the community; (b) the level of stakeholder involvement in the process and their on-going concerns about expanding the conversation further; (c) the pace of the process which allowed ideas to simmer and develop, and; (d) looking forward to the challenges and opportunities that completing and implementing a design would bring.

Hope, Excitement, and Opportunity

Respondents conveyed feelings of high hopes and high expectations as they reflected back to the beginning of their work. Knowing only that they were going to help to define the Next Generation school for their communities, Amy hoped, "that we would be able to breathe new life into the way education is delivered and perceived." Anthony dreamed of a plan that, "our community could be proud of and have people come and ask you or visit you and wonder, how did you accomplish this?!" Betty's feelings were similar, "my biggest hope was that we would be able to take this district to a level that nobody would ever have dreamed possible." Bob believed his hope was definitive, "that we can create the

best education possible for our students. I think that is the kind of answer that covers everything."

The respondents expressed surprise at the level of excitement and interest the process had generated during the problem formulation and design specification phases. Barb returned to strategic planning in an attempt to describe the engagement level she was seeing around the work:

> (With) strategic planning, I've never heard anybody say, "Oh goody! We get to go spend three days in our retreat to do our strategic plan!" That's a real contrast here. The conversations intrigue people – they are engaged from the get-go because they see they have a way to contribute right up front. It's not some magic that someone else is going to go do and hand off to the layers of the organization. There's great enthusiasm about talking about the work of schools. That's a sharp contrast to my prior experiences.

Adam reflected on other processes and programs he had seen come and go:

> I could never really see how (other processes and programs) could help me improve education for my kids. Now with this one I can see how this can have a definite impact on student learning and that's what this has all been generated around – student learning. I think when we went out here and asked what we would do to recreate our schools, that's all about student learning.

Avery noticed that the conversations in the community were taking on a new, more positive tone, "There's a lot of interest in this and what is gonna end

up changing for us, but a lot less defensive than I thought they would have been." Anthony described the energy and excitement in this way, "People who aren't involved with the process don't understand, don't know what magic is happening in the room." Andrea's excitement involved her participation in, "a design process that strives to move beyond using what works now as the new blueprint for the future." Alan sensed a "desire from the people and the willingness to try and improve our school." Alice described her experience as, "interesting, exciting, and stimulating."

Stakeholder Involvement

The involvement of the community and school stakeholders was a key element of the process to many of the respondents. The planning teams took the task of identifying and contacting the various stakeholder groups seriously. Both teams identified at least ten separate stakeholder groups that needed to provide input into the design. Beth believed the planning team, "has made a greater effort to identify stakeholders and get input from these groups." Alex noted the distinction as well, "we have considered many more groups of stakeholders. There has been far more input from these interest groups than I am used to. The involvement of many people has been a good thing."

Respondents found the involvement of a vast array of stakeholders not only provided the planning team with good information but helped to engage the community in the conversation. Bob said, "What I like about this process is engaging the community in the conversation – there are some far out things out

there but if you start breaking it down and go through it, its amazing how everybody ended up in the same place," Avery was intrigued by the notion:

> (In past processes) we never asked our consumers what they had in mind for schools. What was intriguing initially for me was the idea to ask people, 'if you could have what you wanted in a school, what is it you would like your school to be?' And that was quite different from any other training that I've ever been a part of.

Bill felt that change was more likely because listening to the community means, "we can make changes that we all will get behind and support."

Another aspect that emerged from higher involvement from the school's stakeholders was the conversations and topics that emerged. Adam indicated that the process of involving stakeholders produced, "deep conversations that were, before this process, in some ways, kind of taboo subjects. I've had more conversations over the last six months about school governance than I've probably had over the entire forty-six years prior to that." Barb pointed to the excitement that such involvement was producing in her community, "because this process allows you to fully engage your stakeholders as you go, the excitement around thinking about our primary mission is really high." Avery's past experiences made him cautious in talking about reform. Asking the "what would you have" question created, in Avery's experience, something quite different:

> It has kind of tricked them (community and staff) into being included in a conversation about reform without them really knowing they were talking about reform. My past experiences with high school staff is if you mention

> reform people get defensive. But if you ask them, 'if you could have the next generation of school, what would it look like?' even though initially they may be reticent, they participate. Before long there's a certain amount of everybody's got an idea and you aren't judging those ideas so it was a safe environment to talk about reform without necessarily needing to get defensive about it.

Broad stakeholder involvement brought with it both pressure and support for the school leaders. Amy felt well supported, "I feel all of us involved have heard extremely strong support for change from most of the stakeholders, especially the parents, community, students and alumni. With that support I feel all of us are duty bound to facilitate this change." Adam saw the broad and early involvement as an opportunity:

> I think maybe we have an opportunity to take this back to the community because now instead of saying, this is what the folks tell us from out east or west, up north, down south we can say, this is what you guys told us. I think we can come up with a structure. If we can take a little step and have success people will begin to notice and get interested and keep us moving forward.

Stakeholder involvement was an important and valued element of the design process. It provided support, validation, and a sense of urgency and accountability as team members knew that the work was in the public forum in ways not seen before.

Pace of the Process

Some respondents felt strongly that the pace of the process forced them to slow down, reflect, and let the ideas simmer. Beth stated, "the timeframe of this group's work is longer than my past experiences, which I see as being positive." Avery at first felt frustration with the pace of the work but came to appreciate the time:

> It was important to have that reflection time and opportunity to get used to the concepts behind defining a mess and what consumers think should be the next generation school and then using that before you started setting up a design.

Anthony saw value in slowing down, "we believed in the concept of letting ideas simmer – that you need to think about them for a little while. There's value in letting ideas simmer." Adam took a personal approach to the slower process of Idealized Design:

> This system was good for me and my way of doing things. I have the tendency to advocate change probably too quickly. Sometimes I skip steps A, B, C, and D to get to E and then once I'm at E, oops, I gotta go back and repair some relationships that were probably not taken care of the best (Going slow) was pretty valuable to me. I think that is probably pretty valuable to a lot of administrators because we tend to get our administrative positions because we tend to be doers, not just sitters and so we like to go do it. This method has helped me with that.

Summary

It was clear from the respondents that the Idealized Design process provided a level of interest and excitement that they had rarely, if ever, seen in their collective planning experiences. The excitement of asking the "what would we have if we could have what we wanted" question, the broad community involvement in the question and the time to allow ideas and concepts to simmer without having to take hasty action created a strong sense of engagement, interest and hope in the work.

Sense of Sustainability

On-Going Stakeholder Involvement

While respondents were pleased with the process' insistence on taking the conversation to a wider stakeholder group, they expressed concerns about maintaining and expanding that conversation as the plan moved to the implementation stage. There was concern both about those who chose not to or could not be a part of the early conversations as well as those groups most likely affected by the implementation of a new system. Andrea said,

> My concerns focus not so much on implementation from the district's position, but rather from the community's perspective. Although a number of people have tried to keep pace with what the project is doing, far more have not. It is educating those families, and families who do not place education as a high priority, that will be a monumental task.

Amy, a District A board member, wondered, "somehow all stakeholders need to be convinced that this is a good process." Alice wished that more educators in the system could have been brought along from the very beginning, "I would have liked to have brought other educators to the table sooner." Alan, another teacher in District A, saw the challenges as well,

> Our challenge will be to get the people outside of this room to get excited and that is probably my biggest fear right now, just the challenge of how to get other people to look at it the same way. I think people are going to be a little skeptical at first saying, 'this is a normal high school reform issue, we'll just let it pass.'

Anthony wished all board members would have been able to make the commitment, "it's too bad not all board members could be or were available to be involved in the process in the beginning."

Another important theme emerged around concerns and questions about resistance from groups not involved or not wanting to invest the time to understand the thinking behind the design. Some expressed concern about the most resistant groups coming from within the system. Board member Amy expressed concerns about staff resistance, "I fear the strong resistance of staff, especially at the high school, to any change." Anthony echoed Amy's concern in this way, "I think our toughest challenge is going to be with internal staff more than the community and that's not something I'm real proud to say."

Other respondents focused their comments on stakeholders who were not a part of the design team or who chose not to participate in the design

specification work. Concerns about developing an understanding of the work done and why the design should be implemented were foremost for some. Bob, a board member in District B, expressed his concerns in this way,

> The fear is that a small group that doesn't want to do the research into it, doesn't want to go through the process could derail it. If we don't get their cooperation, if we don't get the buy-in that we need from all the groups and what their roles will be. . . well, we need their buy-in.

Alex, principal in District A, wondered about the struggle ahead, "The great majority (of stakeholders) are not involved in the step-by-step process and, therefore, have a much harder time believing in what we are doing or even believing that anything needs to be done in the first place." Alice added, "If one group of stakeholders doesn't see it and understand where we are going it will be difficult to continue."

Adam, superintendent of District A, identified not specific stakeholder groups but, instead, recognized that the larger culture and shared mental image of "school" was a key constraint to be dealt with, "The inertia within the public education system is so amazing. It's moving in a steady, slow direction and for you to get out in front and try to shift it so it moves this (new) direction is not an easy process." Betty's concern was similar,

> I always have the fear of what you do with those that are not on board. You hear from parents all the time, 'well, school was done this way when I was there and I turned out okay.' We have to get out of our comfort zone

and not take them a plan that says 'we're not doing our jobs or we're not good enough,' but rather, we got to get the kids what they need.

Avery, high school principal in District A, recognized the challenges ahead regarding the larger stakeholders but saw a distinct positive difference, "There's a lot of interest in this and what is gonna end up changing for us, but a lot less defensive than I thought they would have been without having gone through the initial input phase." Barb also felt this process held greater promise than any other approach she had seen or experienced before, "(There is) a lot more excitement about what we can do for our systems. I see us starting to be able to make some changes in our system for the better, almost immediately."

Implementation Challenges

Further design and implementation were to commence shortly after completion of the interviews and data collection. Respondents looked forward to the implementation phases of the design and their thoughts and concerns focused on maintaining the momentum that was generated during the initial phases of the design work and feelings of being overwhelmed with the challenges and implications of the work ahead.

Adam felt a sense of urgency in moving forward, in not losing momentum, "We can't lose any of the steps forward simply by letting time and resistance wear us down. Right now we seem to be excited about it but you can use the adage of some of my negative teachers, 'this too shall pass.' I've seen enough to know that it's going to take energy to keep moving forward." Barb, the District B

superintendent, focused upon the energy the process had generated to potentially solve or ease the issues of sustainability and urgency. "There is a positive pressure because it shows me the commitment to education, the general interest of our stakeholders and that they are willing to be there with you to try and do some of these things." Alan feared the initiative could fall off but offered a sense of hope,

> My biggest fear is that this would fall the way of a lot of other reform practices we have in schools. It's great at the time and then it loses momentum and eventually falls by the wayside. However, I think we are too deep now to just let it dissolve and go away and I think there are too many people that are committed to what we are trying to do to let that happen. There are people who are going to keep pushing and pushing and keep trying to improve on what we are trying to do. I think there's a threshold of change and I think we are past that point of being able to hold back our desire to change.

Bob stressed the need to move beyond short-term thinking and the potential issues the designers and implementers might face,

> I look at these things and none of them are short-term. I don't look at any of this as being short-term, you know, quick fix. It's long-term based and I look at it as fear of dropping the ball. If it's not done right in the implementation phase, you go out throwing some of these things and you are going to get slapped down before you can even get out of the blocks. At this stage knowing your allies and knowing who your foes are is key.

Another aspect of momentum appeared in comments related to concerns about just how much could be done or if enough could be done to matter. Beth wondered, "how many of these changes are we actually going to be able to make?" Anthony hoped that enough would be done, "I fear that we won't do enough or make enough of a change. It's been set up that we're going to make some inherent changes. We have to deliver." Avery summed his feeling up this way, "My hope is that the design truly matches up with the desires of our community and staff for a school of the future and that we've got the guts to design something that would be different and more effective for our learners." Alice hoped that momentum could be sustained so that, "this process will continue to guide us for years to come." Andrea believed the potential would assist community and school leaders in moving forward, "the potential for positive change is too great to let this opportunity fall away." Alice summed her feeling up in this way, "This is our opportunity to define who we are and what we are about as a district."

Barb believed that the opportunity to sustain momentum and see the process through was enhanced by the fact that two districts were working together and could lean on and support one another to sustain a long-term effort.

> An important element of this work was the building of coalitions. In Iowa we are small systems and small districts though we hold important roles in whatever size community we are from. The ability to truly keep adapting at the rate we're going to need to in the country, we can't do that in isolation

> from each other and it's not natural. To truly work to change our system, I don't think any one of us can do it ourselves.

A second theme around challenges emerged around the gravity and scope of the work. Such a large-scale and highly visible effort raised the level of concern for some respondents. Amy said, "I am feeling a bit overwhelmed by the next steps of setting up the actual experiment." Bill, a principal in District B, wondered, "where do we start in making some of these changes?" Boyd felt overwhelmed to the point that the process seemed to make him less hopeful,

> I think that we can create change, but not at the level I had once believed. I like believing that I could be a part of something completely new, but as with all changes, it will be an uphill battle. I am intrigued by the ideas, but saddened by what seems to be our immovable constraints.

Avery hoped that reluctance to push forward wouldn't overwhelm the effort, "(We can't) be reluctant to take the chances involved in designing something that truly challenges the way we have been doing things."

Summary

Concerns lingered for the respondents about how to get the uninvolved and continuing skeptics to better understand and support the new design work. The group seemed to appreciate the important role that culture and history play in the inertia they anticipate they will encounter. Hope rests in the group's strong sense of having made a significant turn in thinking about schooling and in a general commitment to overcome prevailing culture and assumptions to create

and sustain a better system for children. Such challenges will play out as both districts engage in design implementation.

CHAPTER 5

CONCLUSIONS

Introduction

The purpose of this study was to better understand if the Idealized Design process demonstrates an effective and workable process for fundamentally changing the conversation about schooling among design participants. Participants identified how the process impacted their thinking about schooling and the potential for change and reflected on the challenges and opportunities that lay ahead.

An exploratory case study approach was utilized to explore the research question with two rural Iowa school districts engaged in an Idealized Design process for envisioning the future of their community schools. Eight individuals were selected for interviews from a twenty-nine member Planning Team. Three individuals were randomly selected by principal, teacher and board member categories from each district. The superintendents of both districts were interviewed. A survey consisting of the same set of structured interview questions was mailed out to those not randomly selected for interviews. Seven respondents, four from District A and three from District B, returned surveys. Respondents included board members, teachers, parents and principals.

The researcher utilized direct observation, document review, and interviews and survey responses in data collection. Data were analyzed through situational, subject perspective, and event coding strategies to compile the final results.

The findings indicated that participants did believe that the Idealized Design process provided them avenues to explore issues and topics more deeply than any of their previous planning experiences. Conversations were deeper and distinctly different for participants as the process pushed them to expose and challenge deeply held assumptions about schooling as well as to participate in describing the school system they would have if they could have what they wanted. Participants also felt a strong sense of engagement and excitement with the process; a sense of having the constraints to their thinking and imagining removed. However, the process did not do much to allay implementation fears, especially surrounding issues of continued and expanded community involvement and engagement and concerns about sustainability.

Discussion

Respondents were struck by the depth and scope of the work. They consistently reported that never before had they been forced or allowed to penetrate deeply into the set of assumptions that defined their school system. Such a process, they indicated, allowed them to expose many formerly unmentionable issues. As the process unfolded it became evident that participants felt the freedom to question and challenge. As one teacher commented, the process allowed them to move beyond methods and programs and to the essence of what schools should do for kids, families and communities. Respondents, most particularly the board members, felt that the scope of inquiry and the process of allowing deep conversation provided them with a holistic

picture of their districts previously unavailable or hidden from discussions. Gharajedaghi named this the "second-order machine" – those things embedded in the culture, hidden from view but defining the way in which the system will operate and the results it will produce (Gharajedaghi, 1999, p. 125). Ackoff argued that understanding a system comes from synthesis – not analysis, which produces knowledge about parts but not understanding of wholes (Ackoff, 1999). It was interesting to note how much more understanding the board members felt they had about the system they governed after this process, suggesting that Ackoff was correct in arguing for synthesis.

Gharajedaghi stated in his book and in conversations with the researcher that, "More often than not, knowledge of the mess helps dissolve it" (Gharajedaghi, 1999, p. 125). Observations and interviews with respondents seemed to validate this claim. Respondents, while still recognizing the monumental effort yet required to implement their design, expressed a renewed sense of hope and efficacy in moving forward. Discussions focused more on creating a compelling picture of the future than on attempting to solve problems within the current system.

Respondents frequently mentioned that this process didn't feel like tinkering, that what they were engaged in had significant implications for creating something new and not simply improving an existing set of structures or processes. Hamel argued that organizations wishing to stay relevant must be as revolutionary in their strategizing as the age they are in (Hamel, 2002). Respondents were convinced that they had engaged in a process holding the

promise of being as revolutionary as the age in which they were living. One superintendent believed the process held the promise of "true innovation and change" and was convinced a more typical planning process would have yielded incremental improvement ideas not capable of creating the level of change needed. Gharajedaghi labeled this as order-of-magnitude change – a change or improvement that is more than incremental or slight but significant by an order of ten (Gharajedaghi, 1999, p. 125).

Respondents identified readily with Idealized Design's ability to generate excitement, hope and opportunity. Virtually all respondents commented about knowing that things had to change and the excitement they felt hearing about a process that would allow them to really attack deep and relevant issues rather than simply continue to discuss and argue over programs and policies. One district team, upon arriving home from a late evening meeting during the early segments of the problem formulation stage, continued their discussion for another ninety minutes in the school parking lot. The superintendent expressed surprise about this stating, "I've never seen a group of people so anxious to continue a discussion about school improvement." When asked if he could get a group to talk about the state mandated school improvement plan in the parking lot after a meeting for ninety minutes, he simply laughed and stated that he couldn't imagine that happening. Gharajedaghi described such excitement, as being born from the process that allows problems to be defined in isolation from solutions. This prevents the "tendency to define the problem in terms of the solution, and a strong preference for the context-free solution that is tried-and-

true" (Gharajedaghi, 1999, p. 116). Having the opportunity to explore the current set of interacting problems the design team faced without having to create on-demand and isolated solutions to each seemed to resonate with the respondents.

Respondents also strongly valued the high stakeholder involvement in designing a solution that the process incorporated. While initially pushing some beyond their comfort level – they hadn't been used to asking stakeholders what they really wanted in a school system – they recognized the value not only in the ideas it generated for their consideration but also in how the specifications were so similar across fairly diverse groups. Consistent themes emerged from the various stakeholder groups that not only fit the design teams' initial design ideas but provided them with further evidence that the system they defined in their problem formulation stage was incapable of producing the results demanded by their stakeholders. Such a realization seemed not only to reassure them of their direction, but also gave them renewed hope that they could develop and present a design that stakeholders would recognize as including their design elements.

Gharajedaghi, in explaining his methodology, argued that wide stakeholder involvement not only creates a stronger and more complete design but goes far in helping to dismantle those cultural assumptions that are no longer relevant while preserving those that are (Gharajedaghi, 1999). Respondents repeatedly talked about how surprised they were at the seriousness and openness with which the various groups addressed the question, and that they asked for things that were not a part of current structures and processes.

Gharajedaghi argued that cultural transformation cannot be externally imposed (Gharajedaghi, 1999, p. 151). Respondents felt that they had a better chance of selling their design because of its local nature. This wasn't a plan designed and introduced by outsiders and respondents appeared to feel a strong sense of pride about their particular design.

Sustainability was not included in the design for this research but became a central theme of respondents as they looked forward. This process did not allay fears about implementation and sustainability. While respondents generally felt better equipped to sustain momentum due to the process they employed, they still recognized the significant barriers, particularly cultural, that stood between them and the ideal design they desired. Gharajedaghi has cautioned that successful cultural transformation involves, 1) making the underlying assumptions explicit through public discourse and dialogue and; 2) creating a shared understanding of what could happen if the current system is left unchanged (Gharajedaghi, 1999, p. 152). Respondents expressed concern about how this would unfold and how they could continue the discussion with a wider and wider group of community stakeholders. The respondents seemed to grasp the importance of their next steps – taking their design back to the community and carefully selecting their first design iteration.

In conclusion, does the Idealized Design process demonstrate an effective and workable process for fundamentally changing the conversation about schooling among design participants? This research would suggest that, in this context with both school districts in the study, the answer is yes. Respondents

felt that they were fundamentally changed because of this process. Many mentioned not being able to return to previous thought patterns and ideas. Conversations among design team members and with friends and peers had definitely been impacted because of the Idealized Design process. Respondents expressed a strong sense of value about the work to effectively expose and understand the interacting sets of problems and deep assumptions they face as well as the value in taking the time to engage stakeholders in meaningful discussions about what could be.

Recommendations

Idealized Design in the arena of public education is relatively new and lacks significant research. Only a few examples exist where the practice has been attempted with little or no formal research conducted. This research explored only the initial phases of the work of Idealized Design – capturing initial potential to expand and deepen both the conversation around schooling and potential preferred designs. This researcher recommends that future research be conducted to discover:

- The implications of the designs formulated and approximated.
- Whether the implementation and sustainability fears and hopes of the participants were realized.
- How successful the Idealized Design process is after one or more approximations.

- The cultural elements and themes that either promoted or hindered implementation of the design and,
- Whether the design, if implemented with fidelity, improved the lives of the children, families, and communities involved in the study.

It is recommended that such a process be entered into carefully with consultants and facilitators knowledgeable in systems design. Leaders must recognize and appreciate the process as a way to leverage change through deep, intense community discussion. However, executed poorly, this process could leave a community feeling overwhelmed and not knowing how to proceed. Great care must be taken to appropriately frame both the problem formulation and the design specification stages.

Schools and districts desiring quick answers and ready-made solutions should not pursue Idealized Design. Schools that suspect or believe the system they have is not the one that will carry them successfully into the future are encouraged to employ Idealized Design as a process.

Idealized Design as a methodology for transforming schools holds great potential but needs many more large and small-scale examples in order to better explain successful applications in creating new school systems. It appears clear to this researcher that many school districts and communities are seeking a new design methodology to address their increasingly complex set of problems and challenges and that Idealized Design holds significant potential to positively impact school improvement and redesign efforts for communities prepared to accept the challenge of recreating schools.

Bibliography

Ackoff, R. L. (1977, Winter 1977). The corporate rain dance. *The Wharton Magazine,* pp. 36-41.

Ackoff, R. L. (1991). *Ackoff's fables. Irreverent reflections on business and bureaucracy.* New York: John Wiley & Sons, Inc.

Ackoff, R. L. (1999). *Ackoff's best: His classic writings on management.* New York: John Wiley & Sons, Inc.

Ackoff, R. L., & Rovin, S. (2003). *Redesigning society.* Stanford, CA: Stanford Business Books.

Adler, M. J. (1978). *Aristotle for everybody.* New York: Bantam.

American Association of School Administrators (2006). Retrieved 11-03-2005, from American Association of School Administrators: http://www.aasa.org/applications/partnerdir/CompanyDetails.cfm?OrgID=347050&Keyword=bill%20cook&Allied=&Sponsor=&Champion=&Advertiser=&startrow=&endrow=.

Banathy, B. A. (1991). *Systems design of education: A journey to create the future.* Englewood Cliffs, NJ: Educational Technology Publications, Inc.

Bogdan, R. C., & Biklen, S. K. (2003). *Qualitative research for education. An introduction to theories and methods. (4th ed.)* Boston, MA: Pearson Education, Inc.

Bolman, L. G., Deal, T. (2003). *Reframing organizations: Artistry, choice, and leadership, (3rd ed.)* San Francisco: Jossey - Bass.

Bryson, J. M. (1988). *Strategic planning for public and nonprofit organizations. A guide to strengthening and sustaining organizational achievement.* San Francisco: Jossey - Bass.

Burt, R. S. (1992). *Structural Holes. The social structure of competition.* Cambridge, MA: Harvard University Press.

Caine, R. N., & Caine, G. (1997). *Education on the edge of possibility.* Alexandria, VA: Association for Supervision and Curriculum Development.

Cambridge Group. (2006). *Facilitation services*. Retrieved 11-03-2006, from The Cambridge Group: http://www.colonialcambridge.com/service.cfm#plan.

Capra, F. (2002). *The hidden connections. A science for sustainable living.* New York: Random House.

Colorado State Community College and Occupational Education System (Office of Vocational and Adult Education.) (1995). On target! Strategies for effective problem solving and critical thinking in the workplace. In *ED 405 017* (J. Budzyna, Trans.). Denver, CO: Author.

Creswell, J. W. (1998). *Qualitative inquiry and research design. Choosing among five traditions.* Thousand Oaks, CA: Sage Publications.

Curtis, M. J., & Stollar, S. A. (1996). Applying principles and practices of organizational change to school reform. *School Psychology Review, 25*(4), 9.

Cushman, K. (1993, January). "So now what?" Managing the change process. *Old Horace, 9*(3), 5-17. Retrieved 26-03-2005, from Coalition of Essential Schools: http://www.essentialschools.org/cs/cespr/view/ces_res/90.

Daggett, W. R. (2005, 27/04). America's most successful high schools - What makes them work (Notes taken as participant in seminar). Cedar Rapids, IA: Grant Wood Area Education Agency.

Dewey, J. (1939). *Freedom and culture* (Questia Online Library). New York: G.P. Putnum's Sons.

Duffy, F. M. (2003). *Courage, passion, and vision. A guide to leading systemic school improvement.* Lanham, MD: The Scarecrow Press, Inc.

Duke, D. L. (2000). *A design for alana: Creating the next generation of American schools* (Vol. 468). Fastback). Bloomington, IN: Phi Delta Kappa Educational Foundation.

Elmore, R. F. (1997, Fall). The politics of education reform. *Issues in Science and Technology Online.* Retrieved 01/14/06, from http://www.issues.org/issues/14.1/ elmore.htm.

Finn, C. E. Jr. (2005, Winter). Sound and unsound options for reform. *Academic Questions, 18*(1), 79 - 86.

Forrester, J. W. (1989, 13/07). The beginning of system dynamics. In *Banquet Talk, International Meeting of the System Dynamics Society.* Stuttgart, Germany: System Dynamics Society.

Forrester, J. W. (1992, 18/08). System dynamics, systems thinking, and soft OR. *System Dynamics Review, 10*(2/3), 14.

Forrester, J. W. (1994, 27/06). Learning through system dynamics as preparation for the 21st century. In *Keynote address.*. Concord, MA: Systems Thinking and Dynamic Modeling Conference for K-12 Education.

Forrester, J. W. (1996, 30/05). System dynamics and K-12 teachers. In *University of Virginia School of Education lecture.* Charlottesville, VA: University of Virginia.

Fraenkel, J. R., & Wallen, N. E. (2003). *How to design and evaluate research in education, (5th ed.)* Boston, MA: McGraw Hill.

Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century.* New York: Farrar, Straus and Giroux.

Fullan, M. (2001). *Leading in a culture of change.* San Francisco: Jossey - Bass.

Fullan, M. (2003). *Change forces with a vengeance.* New York: RoutledgeFalmer.

Fullan, M. (2005). *Leadership & sustainability: System thinkers in action.* Thousand Oaks, CA: Corwin Press.

Gharajedaghi, J. (1999). *Systems thinking. Managing chaos and complexity.* Boston, MA: Butterworth - Heineman.

Gharajedaghi, J. (2004, February). *Systems methodology: A holistic language of interaction and design.* Retrieved 03-04-2004, from INTERACT, Inc.: www.interactdesign.com.

Gharajedaghi, J. (2005b). *Systems thinking. Managing chaos and complexity. (2nd ed.)* Boston, MA: Butterworth - Heineman.

Gharajedaghi, J. (Jghara@earthlink.net) (2006, 10/01). Cedar Rapids, IA.

Gharajedaghi, J., & Leddick, S. (Interact, Inc.) (2004, 11/05). Systems Thinking and Design Workshop. Mystic, CT: LEARN.

Goodstein, L., Nolan, T., & Pfeiffer, J. W. (1993). *Applied strategic planning. How to develop a plan that really works.* New York: McGraw Hill.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA.: Sage Publications.

Hamel, G. (2002). *Leading the revolution. How to thrive in turbulent times by making innovation a way of life.* New York: Penguin Group.

Heady, R., Kilgore, S., & Hudson Institute. (1996). The modern red schoolhouse. In S. Stringfield, S. M. Ross & L. Smith (Eds.), *Bold plans for school restructuring: The new American schools designs* (pp. 139-178). Mahwah, NJ: Lawrence Erlbaum Associates.

Hock, D. (1999). *Birth of the chaordic age.* San Francisco: Berrett-Koehler Publishers.

Holly, P. (1990, June). "Catching the wave of the future"; moving beyond school effectiveness by redesigning schools. *School Organization, 10*(2/3), 18.

Hunt, T. C. (2005, September). Education reforms: Lessons from history. *Phi Delta Kappan, 87*(1), 84-89.

Jenlink, P. M. (2002). Education for civil society: Evolutionary guidance and the democratic ideal. *World Futures: The Journal of General Evolution, 58*(5/6), 22.

Johnson, S. (2001). *Emergence. The connected lives of ants, brains, cities and software.* New York: Touchstone.

Joseph, R., Jenlink, P. M., Reigeluth, C. M., Carr-Chelman, A., & Miller Nelson, L. (2002). Banathy's influence on the guidance system for transforming education. *World Futures: The Journal of General Evolution, 58.*

Kaufman, R., & Herman, J. (1991). *Strategic planning in education. Rethinking, restructuring, revitalizing.* Lancaster, PA: Technomic Publishing Company, Inc.

Kohn, A. (1999). *The schools our children deserve. Moving beyond traditional classrooms and "tougher standards".* New York: Houghton Mifflin.

Lambert, L. (1998). *Building leadership capacity in schools.* Alexandria, VA: Association for Supervision and Curriculum Development.

Laszlo, E. (1996). *The systems view of the world. A holistic vision for our time.* Cresskill, NJ: Hampton Press, Inc.

Leddick, S. K. (2004, March). *The case for a new planning approach.*

Lee, T. H., & Woll, T. (1996, Spring). Reflections on the idealized design planning process. *Center for Quality of Management Journal, 5*(1), 17.

Levine, A. (2004, 8/31). *New rules, old responses.* Retrieved 11-11-2004, from Columbia University, Teachers College: http://www.tc.columbia.edu/news/article.htm? id=4741.

Levine, A. (2005, 12/01). *A time for mobilization and fresh ideas.* Retrieved 07/11/05, from http://www.tc.columbia.edu/news/article.htm?id=4848&tid=119.

Mauriel, J. J. (1989). *Strategic leadership for schools. Creating and sustaining productive change.* San Francisco: Jossey - Bass.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy safari. A guided tour through the wilds of strategic management.* New York: The Free Press.

Myrna Associates (2006). *Leaders in strategic planning.* Retrieved 3-3-2006, from Myrna Associates: www.ceo-strategic-planning.com.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington, DC: USA Research.

Peterson, D. (1989). *Strategic planning: ERIC digest series number EA 41.* Eugene, OR: ERIC Clearinghouse on Educational Management.

Pfeffer, J., & Sutton, R. I. (2000). *The knowing - doing gap. How smart companies turn knowledge into action.* Harvard Business School Press.

Ravitch, D. (2003, Spring). A historic document. *Education Next, 3*(2), 25-37.

Richmond, B. (1991). *Systems thinking. Four key questions* (1-8). Retrieved 27-12-2005, from High Performance Systems, Inc.: www.iseesystems.com/resources/Articles/ST%204%20key%20questions.pdf.

Richmond, B. (1994). System dynamics/systems thinking: Let's just get on with it. (Keynote Address) *International Systems Dynamics Conference* (pp. 1-26). Sterling, Scotland.

Sarason, S. B. (1990). *The predictable failure of educational reform.* San Francisco: Jossey - Bass.

Sarason, S. B.(1996). *Revisiting "The culture of the school and the problem of change".* New York: Teachers College Press.

Schlechty, P. C. (2001). *Shaking up the schoolhouse. How to support and sustain educational innovation.* San Francisco: Jossey - Bass.

Senge, P. M. (1990). *The fifth discipline: The art & practice of the learning organization.* New York: Doubleday.

Shantz, D., & Rideout, G. (2003, Fall). Education versus schooling: Seeking new paradigms for a new century. *Education, 124*(1), 203-213.

Spady, W. G. (1983, October). The illusion of reform. *Educational Leadership, 41*(1), 1.

Spady, W. G. (1998). *Paradigm lost. Reclaiming America's educational future.* Arlington, VA: American Association of School Administrators.

Spady, W. G. (2001). *Beyond counterfeit reforms: Forging an authentic future for all learners.* Lanham, MD: The Scarecrow Press, Inc.

Sternberg, R. J. (2000). *Making school reform work: A "mineralogical" theory of school modifiability* (Vol. 467). Fastback). Bloomington, IN: Phi Delta Kappa Educational Foundation.

Tyack, D. (1990, Winter). Restructuring in historical perspective: Tinkering towards utopia. *Teachers College Record, 92*(2), 170-191.

Ulrich, W. (2002, 12/11). *C. west churchman - 75 years* (Werner Ulrich, Ed.). Retrieved 1/28/06, from Werner Ulrich: http://www.geocities.com/sch_home/cwc appreciation.html.

Wallace Foundation & The Iowa Department of Education. (2004). *Iowa School Governance Grant.* Des Moines, IA: The Wallace Foundation.

Wheatley, M. J., & Crinean, G. (2004). *Solving, not attacking, complex problems.* Retrieved 28/12/05, from The Berkana Institute: http:/www.margaretwheatley. com/articles/solvingnotattacking.html.

Yin, R. K. (2003). *Case study research: Design and methods.* Thousand Oaks, CA.: Sage Publications.

Zmuda, A., Kuklis, R., & Kline, E. (2004). *Transforming schools. Creating a culture of continuous improvement.* Arlington, VA: Association for Supervision and Curriculum Development.

Appendices

Appendix A: Informed Consent for Participation in Research Project

This project is being conducted as a partial fulfillment of the requirements for the researcher's Ed.D. in leadership at Drake University in Des Moines, Iowa.

There are no foreseeable risks with this research. The main potential benefit is in further understanding of the interviewee's experiences as it relates to the interviewee's participation in the "Examining School Governance Grant."

I agree to participate in this research project and understand that:

1. The time required for this study is about 60 minutes.
2. The nature of my participation includes either a phone or in-person interview that will be recorded for accuracy and used only for this study and focuses on the interviewees experiences, perceptions, and understandings regarding their involvement in the "Examining School Governance Grant" project conducted during the 2005 and 2006 years.
3. My participation is entirely voluntary. I may terminate my involvement at any time without penalty.
4. All my data are confidential.
5. If I have questions about the research, or if I would like to receive a copy of the aggregate findings of the study when it is complete, I can contact the researcher by calling 319-851-2060 or emailing: tpick@recruitinghawk.com.

☐ By checking this box, I request that a pseudonym be used in place of my real name in order to protect my identity.

Researcher:

Trace Pickering
1060 Shae Drive
Palo, Iowa 52324
Institutional Review Board Number: IRB2005-06035

Interviewee:_____(Please Print)

Interviewee:_____(Signed)

Date:_____

Appendix B: Interview Record Form

Interview Record Form

Interviewee Name	**School District**	**Position/Role**	**Gender – Age**

DATE/TIME:_____
LOCATION:_____

1. Prior to this experience, what was your experience with planning and design? How was this experience similar and different?

2. Have your conversations with other members of this group, your friends, and/or the community about school and school reform changed since beginning this process? Why and how?

3. What were your fears and hopes as you took part in this work?

4. What fears and hopes remains as the rest of this process unfolds?

5. Do you believe, and have you seen evidence in yourself and others, that this process holds the potential to help create meaningful change for your community's school system? Why or why not?

Appendix C: Governance Grant Survey

Governance Grant Survey 06035	**Institutional Review Board #: IRB2005-**		
Interviewee Name (Optional)	**School District**	**Position/Role**	**Gender**

Meeting Attendance. Indicate your attendance at the meetings of this team by circling those that you attended:	**Organizational Mtg – April, 2005**
	Jamshid June, 2005
	Mtg 1 – August, 2005
	Mtg. 2 – September, 2005
	Mtg. 3 – October, 2005
	Mtg. 4 – January, 2006 w/Jamshid

The following survey is part of a research project being conducted by Trace Pickering for partial fulfillment of the requirements for the researcher's Ed.D. in leadership at Drake University in Des Moines, Iowa. These questions are designed to elicit your experiences, perceptions, and understandings regarding your involvement in the "Examining School Governance Grant" process to date. Please answer each question as completely as you can. This is a voluntary survey and you are under no obligation to fill any or all of it out. Thank you for your assistance in providing valuable data to this project.

1. Prior to this experience, what was your experience with planning and design? How was this experience similar and different?

2. Have your conversations with other members of this group, your friends, and/or the community about school and school reform changed since beginning this process? Why and how?

3. What were your fears and hopes as you took part in this work?

4. What fears and hopes remains as the rest of this process unfolds?

5. Do you believe, and have you seen evidence in yourself and others, that this process holds the potential to help create meaningful change for your community's school system? Why or why not?

6. Please share any other comments you have about this process that help to better clarify your position, feelings, and/or perceptions about your involvement in this process and the merits or lackthereof of the process.